

The Secrets to a Successful Business Intelligence Implementation

Summary

Successful BI implementations require new thinking in data access, delivery and interactivity based on the needs of new users across the enterprise.

This white paper details the differences between Business Intelligence and Operational Intelligence programs, and how to succeed in both:

- Understand why more than 50% of BI implementations fail
- Understand the conflicting requirements between Business Intelligence and Operational Business Intelligence
- Understand how to empower all stakeholders to ensure successful implementation
- Understand the Operational BI challenges in managing historical data, dynamic data and external data sources
- Learn about new Operational BI innovations available today, that provide the flexibility, scalability and platform independence needed to ensure successful implementation

Business Intelligence – how to be one of the 35% to succeed?

Because of the low success rate, Business Intelligence (BI) solutions are rapidly becoming more dynamic in nature. From the surface, it may look like a simple expansion of traditional business intelligence capabilities into operational areas. In reality, operational BI offers a whole new approach to data access, collaboration and empowerment.

BI Challenges

Traditionally, Business Intelligence solutions focus on corporate departments that serve strategic functions. Because of the targeted user population, traditional BI focuses on historic data analytics such as OLAP analysis and other slice-and-dice functions where users typically evaluate large volumes of historic data. As a consequence, traditional BI is associated with data warehouses, data marts and other centralized, large scale, aggregated data stores.

For operational users, traditional BI offers limited historic aspects or is not applicable at all. Reporting software, whether homegrown or commercially purchased is their primary and most of the time, only source of Business Intelligence. The most common uses are production reports that are pre-designed for specific end users. Additional report requests or modifications are typically handled by IT on an as-needed basis. As a consequence, operational users are severely limited in their ability to access dynamic real-time information with considerable latency. Even tasks as mundane as changing font size or enlarging fields will likely require IT involvement. Many systems can be inflexible, costly to maintain and may actually hamper decision-making and impede business innovation. This is one of the primary drivers that send end-users to pursue Excel spreadsheets as a manual BI tool with the outcome of many versions of “truth”.

The answer for these users' information needs seems straightforward: Give business intelligence tools to operational and business users so that they can manage real time data as well. Apparently, implementing a traditional Business Intelligence solution for operational users can turn out to be quite troublesome, as industry analysts have reported BI implementation failure rate of more than 50%. Many of these failures happen when BI is pushed down in an organization.

Strategic Tools for Tactical Tasks

Many different reasons have been offered to explain such dismal results. A “Big Bang” approach is one often mentioned. The reasoning goes that if the BI project was implemented incrementally, the failure could have been noticed earlier. Another common cause often identified is lack of attention to data quality i.e. “Garbage-in, Garbage-out” results. More generic project failure reasons include poor requirements definition, lack of resources, inexperience, and inadequate integration are also cited suspects.

These causes are real and helpful in understanding potential barriers to success, but they are not the root cause. The root cause is a mismatch between the traditional BI tool's strategic focuses, not supporting the dynamic tactical application environment.

For example, Susan Osterfelt, a Senior VP for the Bank of America, described the differences between tactical and strategic business decisions as follows: "There are two major types of business decisions our organizations face today - tactical ones and strategic ones. Strategic decisions, such as what businesses we ought to be in and what markets we want to attract, are enabled by using the data warehouse. Tactical decisions, such as what inventory levels to maintain or what product to offer a customer, are facilitated by using the operational data store."

Strategic and tactical distinctions are important for any sizable operation. The most immediate example is the military. Imagine the military trying to use a long-range ballistic missile to hit a moving ship at sea. Such a powerful strategic weapon is simply not appropriate for this tactical task. Instead, a smaller and more tactical weapon must be employed. It doesn't need to cross thousands of miles but it must be nimble enough to make real-time changes and constant updates.

Traditional BI tools are modeled, designed and engineered to address strategic business decisions. Fittingly, a typical BI implementation scenario is as follows:

- A dedicated expert team will build the front-end BI tools and back end data warehouse.
- Data will need to be Extracted, Transformed and Loaded (ETL) from different sources into a central data warehouse. Data quality issues are addressed in this ETL process.
- Data models are structured for clearly defined static requirements. Changes typically require high-level expertise and lengthy customization.
- Analysis and presentations are concentrated on high-level views from aggregated data.
- End users are highly trained analysts and managers who value power far more than flexibility or ease of use.

Upon examining this model from a tactical perspective, it becomes easy to understand and identify the fundamental mismatch.

IT Inexperience: Economic Model Mismatch

The requirement of funding and allocating experienced resources is a tall order even for traditional strategic BI projects. Traditional BI has enjoyed the luxury of being managed by experienced specialists but along with that comes a big price tag. On the other hand, operational BI is often called BI for the masses because of its easier to use and self-service nature. With operational BI, the masses can get the same or higher level of information access and services as the elite, but with a relatively small incremental price tag.

However, the costs for extending BI to a wider audience in traditional solutions are often an issue. It reflects the fact that the traditional BI economic model is too costly for operational groups to shoulder. Even if the aforementioned ballistic missile successfully hit the moving ship, we may soon be bankrupt if we continue to launch it.

Lack of IT resources: Economic Model Mismatch

As opposed to traditional BI's application model where BI is the central tool for the end user group, operational BI is typically just one of the business applications that works in tandem with other applications. Operational BI often competes for resources against urgent production issues and other operational applications. Also, because of this self-centric view, the traditional BI implementation is modeled on the assumption that historical data will be the central focus for both initial setup and continuous maintenance. Historical data, however, is not the focus for operational groups.

This economic model mismatch creates the base for resource constraints that are the foundation of many implementation failures. To refer back to our military analogy, although an infantry division can successfully deploy a strategic weapon, they may not have the bandwidth to deploy it while juggling other missions and tasks.

Lack of end user involvement: Application Model Mismatch

Traditional BI assumes that the end user population is highly trained with a uniform skill set. Operational users, on the other hand, are highly diversified. Their skill levels vary from basic MS Office software to highly sophisticated application managers. Operational BI therefore needs to provide an intuitive interface that allows a wide range of use from viewing pre-designed reports to customizing advanced analysis and monitoring – all according to the user's business role and skill level. Without such personalization within a single software package, many operational end users will be intimidated by the complexity and withdraw from use.

This application model mismatch can severely reduce the effectiveness and adoption of BI. It's common to see BI initiatives end up as a mixed bag of multiple applications with severely limited utilization.

Big Bang Failure: Application Model Mismatch

The big bang approach, whereby a large comprehensive solution touting that it can do everything for everyone sounds a little scary from a cost, implementation and timeline perspective. The real cause for failure here however, is inside the BI software itself. The tight relationship between data warehouse, ETL and the BI user interface fundamentally guides the implementation into a big bang plan. This may be workable for traditional BI at some levels, but totally unacceptable for operational BI approach. Operational environments are extremely dynamic and have strong demand for fast and continuous change. When a BI system isn't able to evolve rapidly and change with or ahead of a business process, it will quickly become obsolete.

The disadvantages of the traditional BI's solution model are unfortunately amplified within the operational environment. The long preparation of strategic mission is often fatal to rapid tactical execution.

Data Access Flexibility: Data Model Mismatch

With traditional BI, flexibility typically refers to the ability to slice and dice historical data as you need it. Once you look under the hood, you will find this flexibility is actually built on a rigid data infrastructure. The combination of data warehouses, ETL processes, middleware, data models and meta-data make customization or rapid changes a great challenge. It works reasonably well with historic data because the data is historic in nature and is relatively stable.

Operational management needs to have access to historic data but more important to them is accessing dynamic and transaction type data from multiple sources including operational data stores and external data files and documents. Instead of cleansing inconsistent data from many sources, integrating static data and dynamic data in real-time poses the greatest challenges. Business process exceptions require one-off reports to gather information for immediate action. The process is highly dynamic and could require integrating unstructured data, such as flat or Excel files, with other operational data. The rigid data model layer in traditional BI will require IT to change the data model to accommodate, which can quickly become the bottleneck like an old report queue.

Flexible data access is the most fundamental element of BI. BI project scoping is an example of potential issues stemming from the data access model mismatch.

Find a Winning Operational BI Strategy

In order to avoid the crucial BI pitfalls mentioned above, it's vital to identify the key attributes that will help ensure success. Instead of trying to come up with an exhaustive list of all possible causes and scenarios, perhaps consider the possibility of finding a simpler model that identifies the key attributes?

When analyzing these mismatches, three aspects stand out as most fundamental: The economic model, the application model and the data access model. Let's briefly investigate all three.

Economic Model: Operational BI as a Regular Application

Just like any application, investment in hardware, software and human resources are the main components beyond functionality. But unlike most other software tools, traditional BI solutions are monolithic in proportion and are typically huge undertakings. For BI to be successful, it's necessary to find a more flexible and "friendly" solution.

Operational BI systems that can be deployed on existing hardware platforms are ideal. It minimizes resources in general and initial setup costs, maintenance and long term maintenance cost in specific. Today's software platforms have been standardized beyond operating systems. Operational BI deployed inside standard application servers are environmentally simpler and leverages the investment of the software platform itself.

The bottom line here is that standard hardware and software platforms reduce administrative costs and complexities. The extent that open standards technology is utilized by operational BI software itself, determines the impact on implementation and support costs. When operational BI software can share common standard technology with other applications, it decreases the risk of inexperience barriers and reduces potential knowledge and expertise barriers for ongoing usage.

The combination of common hardware/software platforms and open-standard skill sets to implement and manage the solution drastically reduces the resource demands on the entire support organization. Consequently, BI initiatives are simplified to regular applications that can be deployed and supported by an existing IT staff. This direction addresses the entire economic model related to the lengthy list of implementation, training and maintenance issues.

Application Model: Active Involvement for all Stakeholders

Today's BI users typically include diversified stakeholders including IT, front line users, business and operations managers and analysts. To ensure a successful implementation, the final solution must make all parties active stakeholders and therefore, all must be actively involved in the set-up and training processes.

For your IT department, the challenge of creating comprehensive production reports with complex business logic will only become more demanding because data accumulation is growing exponentially. Production reports are the best way to deliver consistent information with minimal training. Carefully selected, high impact production reports should still form the bases of operational BI reporting.

For front line users, nothing frustrates them more than having to go back to IT for every little report change. While production reports provide the majority of information they need, they do need the freedom and knowledge to update their reports using intuitive features such as parameters, sorting, filtering and alerts.

For analysts and power users, creating ad hoc queries, evaluation type analysis and reports within a broadly defined framework are essential. Shortcomings in ad hoc capability will likely make them return to familiar Excel spreadsheets in quick flight. Mixing diversified structure and unstructured data is equally as important as data quality and presentation for them.

For operations managers and executives, high-level views delivered through custom dashboards that monitor dynamic data and provide alerts are real time savers, as well as solution value reinforcement. The ability to drilldown into details from high-level views is crucial to this group as well.

Traditional BI solutions are not designed to serve multiple roles such as these and thus, the root cause for application model related issues. The bottom line here is when people feel empowered, they feel as though they have a stake in making the solution work!

Data Model: Operational Data Store and Unstructured Data

Operational data needs to center around the operational data store. Around this central storage, many dynamic and external databases and unstructured data sources, such as XML files or Excel files provide supplemental data. This is noticeably different from traditional data warehouses that are used to aggregate many sources of structured and historical data.

Much of the data in operational data stores are transactional and real-time in nature. Supplemental data sources are even more dynamic. Additionally, new data sources in the form of Excel files or even Web pages need to be combined as required. As the nature of customer and product information, for example, are continuously changing.

These natures of operational data challenge the ETL data warehouse assumption that data integration and modeling are pre-structured, backend, IT functions. The widespread Excel usage for BI provides further supporting evidence. The question is what end users are doing in Excel. They use it to draw different data sources together, perform cleansing and filtering of data and provide the output as aggregated views. This is done because it's not realistic to expect a data warehouse change whenever a new spreadsheet is received.

Instead of aiming for re-structuring and pre-structuring all data, the successful data-accessing model for operational BI should aim for a good operational data store foundation with the flexibility to access and integrate dynamic external data regardless of platform, format or data source. Flexibility should also be extended to the direct business user, so that all external data is fully manageable after being introduced.

A data warehouse will still offer advantages for various reasons such as volume and performance. However, the data warehouse should be viewed as just an extension of the operational data store. It could be as simple as a replicated operational database or as sophisticated as a new multi-dimensional database. It should, however, only be considered if it's clearly necessary to the business model, because beyond the considerable complexities to create and maintain, it may be extremely difficult for an implemented system to be removed.

Conclusion

The intrinsic differences in the business and stakeholder models definitely exacerbate opposing needs between traditional (strategic) and operational (tactical) business intelligence initiatives.

When implemented and used correctly, data warehouse and ETL solutions are valuable aspects of traditional BI programs. New dynamic approaches to BI, like operational BI, do not look to replace these functionalities; rather it looks at them as an important, yet not the "self-centered" piece of the whole BI puzzle. Some of the major differentiators between operational BI and traditional BI implementations include: low cost of ownership, short deployment timelines, reduced complexities, low impact on IT resources, and enhanced end-user adoption across the enterprise that includes common business users.

WHITE PAPER: THE SECRETS TO A SUCCESSFUL BUSINESS INTELLIGENCE IMPLEMENTATION

Having easy and flexible real-time access to data from disparate sources, without long delays and IT impact, is paramount in gaining stakeholder buy-in across your organization, with “flexibility” being the real key.

Innovative operational BI tools like those provided by InetSoft’s Style Intelligence™, provide the real-time data access, analytics, monitoring, reporting, and visualization functionalities mentioned above, with the added flexibility, scalability and platform independence that only J2EE can provide.

For more information on InetSoft’s Style Intelligence software, please visit www.inetsoft.com.