# busii
intelligence integrated

Testing BI – The Quality Dimension

Testing BI is Different

Business intelligence and data warehousing (BI&DW) applications have become increasingly mainstream in many organizations. With the large-scale integration of these applications into business operations comes the potential for significant financial consequences of application failure.
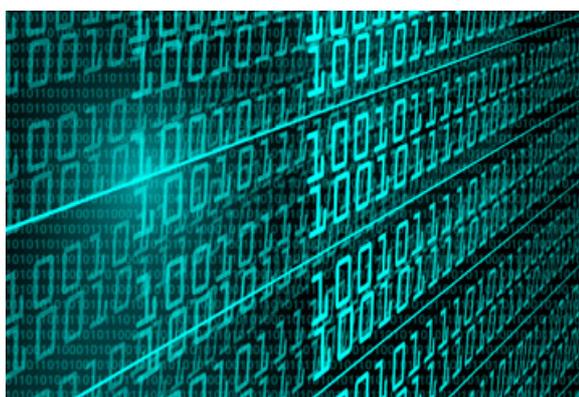
When the intended impact of an application becomes significant and failure consequences are severe, a corresponding effort is needed to assure its quality. Organizations have become more aware of the importance of this aspect to BI and data warehouse initiatives.

But testing these applications is not the same as testing other types of software applications. BI&DW is different from online transactional applications in the way data is created and updated, the way that users interact with the data and the large data volumes involved. These differences affect the way the different types of applications are tested. For online transactional applications much emphasis is put on testing the front end functionality of the application. In the case of BI&DW applications this functionality has already been tested by the BI tool vendor. Instead the testing effort has to focus on the system-specific semantic layer in the tool that is built on top of the data warehouse data. For BI&DW applications unmanaged changes in source systems and undetected operational issues can play havoc with the data which imposes an ongoing need for operational testing in the form of reconcilation and variance checking.

Furthermore, there are techniques and technologies specific to each type of application, and knowledge of these is required for both implementation and testing expertise, for example known characteristics of various database and ETL design patterns in the context of specific requirements.

The Need for BI Expertise

The inescapable conclusion is that the domain experience is crucial in ensuring effective and efficient information about the quality of BI&DW applications. With the tight constraints on today's implementation projects, organizations can ill afford the time for their testing partner to get up to speed on the application domain specifics of their project, thereby wasting valuable resources and negating the potential beneficial feedback on the quality of their system.

Source data profiling to identify data quality issues and other areas such as dimensional design and refresh techniques and ETL design strategies are all specific to BI&DW. The testing partner needs to come equipped with expertise in all these areas, in order to be aware of the relevant quality characteristics in each case.

The Busii Contribution

This is where Busii offers a unique combination of testing expertise and application and business domain knowledge to clients. We have extensive experience in BI&DW implementation projects across a range of industries, from telcos to health insurance, banking and retail.

Busii consultants are familiar with BI&DW tools, databases and the new big data technologies which means we can become productive sooner than a generic software testing partner. Our experience in testing BI&DW applications means for example that we understand which types of automated testing are useful for BI&DW applications and which types are not, when to use test data and how to balance data coverage with business rule coverage to ensure the most effective test strategy.

Clients benefit from these capabilities through identification of relevant quality characteristics that would not otherwise have been brought to their attention. This enables more informed, cost-effective and timeous decision-making about your BI&DW initiative.

Automated ETL Testing

Because of the data-centric nature of BI&DW, data reconciliation forms a major part of most test levels. Automated test suites to perform detailed and summarized data reconcilition are therefore essential in most BI&DW test initiatives. The Busii automated ETL test framework has been developed for this purpose.

It is a modular environment built using open source software that can be used to communicate with web interfaces, all databases and file formats and compare sources to targets at any level detail and business rule complexity. The framework can be left in place to be used for regression testing to optimize the quality of the frequent changes characteristic of BI&DW environments in heavy use.

The framework has also been used in production environments to perform automated operational testing and provide exception reporting in email or SMS formats.

Testing Approach

We prefer not to impose a rigid A-Z set of fixed detailed test conditions on our clients. Instead our approach is to focus on relevant stakeholder concerns, believing that quality is determined by what is important to stakeholders. This ensures that the information we provide about product quality is relevant and that the testing initiative prioritizes the right areas. We consider stakeholder quality concerns and project constraints and apply our knowledge of known BI&DW quality issues to develop a test strategy which is then worked into a test plan to drive the testing project.

Busii can provide a standards-based full test lifecycle engagement, including
  – test strategy definition
  – test management
  – test design, execution and logging
  – defect tracking
  – test reporting