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A true enterprise data warehouse deployment requires careful consideration, says Pendse.

Data Warehouse: Key Considerations

Understanding the requirements and strategies of data warehousing is the key to a successful deployment, according to Abhijit Pendse, Senior Engagement Manager, Cedar Management Consulting International

Business Intelligence has been a popular buzzword among the C-Suite executives in the past couple of decades. The business folks always look towards it as a panacea for all analytics, but for the CIOs it has been a perennial headache. Balancing the business expectations and the technology possibilities within an acceptable timeframe is a game which not many CIOs

have won in the complex maze of dimensions and cubes of data warehouses.

Data Warehouse (DW) projects are huge and typically the implementations run over a couple of years costing 5-10 million dollars. However these projects also have a very high failure rate. As a result choosing the right architecture and the implementation approach

becomes critical before venturing into a DW project.

Even before start of the project, the first decision the CIOs have to take is whether to implement an enterprise data warehouse (EDW) or to go with a tactical solution. The business requirements and the existing technology architecture play an important part in this decision. If the business requirements

are operational in nature, then in majority of the cases, a tactical solution with a Business Intelligence tool deployed on top of an operational database should suffice.

However if such a tactical solution is not going to serve the purpose and an enterprise data warehouse has to be implemented, then a completely new set

of attributes have to be considered.

DW Design Attributes

The first critical attribute in the design of a DW is the architecture. In a distributed architecture, the data is stored between diverse, heterogeneous and loosely related data stores. In a centralized architecture, data is stored centrally in a hub and spoke model. A centralized architecture is the preferred choice of the majority due to ease of maintenance, data consistency and optimized interfaces.

The second attribute is the design methodology. In the Bill Inmon 'top down' design approach, the EDW is created first and the dimensional data marts are carved out of the EDW. The 'bottom up' approach proposed by Ralph Kimball recommends creating the data marts firsts which are later joined to create the EDW. While there are pros and cons associated with both the approaches, the majority of implementations have used the Inmon top down approach.

Third attribute is deciding the refresh rate. The first generation data warehouses of the 1990's usually had a monthly refresh rate. Over the years, there has been a gradual shift from monthly to a daily refresh. With new requirements like fraud detection, risk management and dynamic dashboards

taking business priority, the need has arisen for real time or near real time refresh. A real time refresh requires higher storage, bandwidth and faster server infrastructure. While the industry standard at this moment is the daily refresh, a real time refresh rate is worth considering as the analytical possibilities and applications are endless in this option.

The fourth key attribute is the data model. Custom build data models have been the preferred choice. Most CIO's believe that their organization is unique and hence a pre-built off the shelf model will not serve their purpose. However this belief may not be true. Also the pre-built models have matured over a period of time, are faster to implement and are regularly upgraded by the DW vendors.

Implementation Considerations

Choosing the right DW design is half the battle won. While it is a prerequisite to the success of the DW project, it needs to be appreciated that DW implementations are different from the regular IT projects and some key areas need to be

planned intelligently.

Information Quality - Root causes of bad information quality are invalid, incomplete and incorrect data. Lack of attention to data quality issues in the source systems can

to retain their interest and confidence through the project. One way of achieving it is using the iterative approach to the implementation instead of the traditional waterfall. In this approach, by delivering

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result in an outright failure of the project. A data cleansing exercise must be a part of the implementation exercise and has to be planned tracked.

Subject Areas Prioritization - When subject areas are prioritized, high value ones (avoiding the complex ones) need to be chosen in the initial implementation phases. Once a subject area is chosen, KPI's that are essential to operate the business need to be picked and the standards and governance should be build keeping them in mind.

Quick Wins- In the lengthy process of DW implementation, quick wins and tangible benefits have to be constantly shown to the project sponsors

functionality and business value with each iteration, one can integrate data, create reports, train users and built up on the lessons learned. The other way of achieving it is by temporarily creating a quick data mart in a couple of months and allowing the users to explore it. This has two benefits - the users can immediately get some reports from the system and more importantly it will train the users and bring them up the learning curve on the DW project.

The key design and implementation considerations outlined above if handled properly, will ensure a smooth and successful DW implementation.