Impact of Data Warehouse in Decision Making Process

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Abstract: *In this paper we have mainly emphasised on the concept of Impact of data warehousing on making better decisions. The reporting and sharing of information has been synonymous with databases as long as there have been systems to host them. Now more than ever, users expect the sharing of information in an immediate, efficient, and secure manner. However, due to the sheer number of databases within the enterprise, getting the data in an effective fashion requires a coordinated effort between the existing systems. By using warehouse data, just about anyone can create complex models, build charts and calculations, manage a variety of reporting functions, analyse and make decisions.*

Keywords: Data Warehouse, decision making management, management, ETL (extract, transform and load) and BI (Business intelligence).

1. Introduction

The Enterprise Data Warehouse contains the data from other databases from across the entire business. Although most databases that are in use in an environment will have an application sitting on top of it for better usability, a data warehouse is just a very large database that does not have a traditional application tier. Nonetheless, there are applications that are part of a data warehouse, but they are there to complement the warehouse as components that provide a different purpose. First, there is an ETL (Extract, Transform and Load) application that is part of a solution that moves data from the transaction source database. Some popular ETL applications are SQL Server Integration Services, the OBIEE application from Oracle and Informatics, to name only a few.

The most recognized application piece of a data warehouse is in actuality the reporting tools used as part of the presentation layer. The reporting application is generally not part of the warehouse, but it is the public face of the data warehouse and is the part that most users are familiar. There are host of tools to report or query the data in the warehouse, but they are generally homogeneous to the warehouse and can be used with other databases for reporting or data presentation. Nonetheless, quite a few other components are for use specifically for the data warehouse, such as the tools that a vendor will be eager to sell you for some long-term use and license fee. However, for the point of attaching a motivating application to a data warehouse, the most important piece is the application that handles the presentation layer, which is the information-sharing component, specific to reporting.

Almost all businesses today, big or small, rely on some form of analysis and reporting on which to base their business decisions. Businesses need to access historical data for spotting business trends, customer buying patterns, data relationships and other time and demography based studies. A data warehouse provides a business with all such data in an easy and quick manner.

2. Decision Making Process

A Manager or an individual needs to be effective with making decisions ranging from large to small on a daily basis. Managers/individuals must be problem-solvers and who can make decisions instantly. It is critical to first prioritize problems based on issues that effect on the organization. Those that stand to have the greatest impact should be dealt first, and all problems need to be addressed in a systematic way prior to a decision being made. Because a first impression cannot reflect the entire situation, an individual must avoid jumping to conclusions. Collecting information from more than one source to avoid bias, and completely assessing all pertinent and verifiable information prior to rendering a decision is strongly recommended.

Collecting information in order to obtain a complete understanding of the issue is only the first step. Once the information is available, then it is wise to brainstorm different solutions and possible alternatives in order to get more than one pe6rspective. Such options can start out as wide-ranging, and then can be narrowed down to fit the scope of the problem.

Having identified a set of options and solutions, feedback and suggestions on them, along with alternatives, should be sought from consultations with others. For the most part, group decisions particularly where the group contains people who the end decision will affect are preferable to those made by individuals as a pool of knowledge, skills and experience can be drawn upon.

3. Literature Review

The Enterprise Data Warehouse has a design scheme that makes it conform to the current and studied methodologies of data warehousing where the result is a star schema design. The traditional data warehouse design is mostly due to the work of Ralph Kimball of the Kimball Group and will be a source of concentration for the following discussion as it relates to the system architecture. The most

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poignant of terms introduced by Kimball is that of dimensions and fact type tables as the way that data need to be arranged for the eventual organization into data marts and reporting.

Also provided is the manner in which data moves from the operational source, such as transactional databases, over to data warehouse itself. The data itself moves through a tool known as an "ETL" which stands for Extract, Transform and Load (which itself stands for the steps taken with the data to build the data warehouse). Once the data are loaded sufficiently, the data in the appropriate tables give the users the ability to report their data as needed. The data staging area is one of the most significant pieces of the data warehouse solution because it offers chances to organize data from all sources into one place before sending the data to the final source where the users will make their queries run. As Kimball analogizes with the kitchen of a restaurant, the data staging area will not be transparent to the users of most every spectrum of the community aside from highly specialized developers responsible for the ETL.

Nonetheless, the extraction of data would be better organized rather than haphazardly assembled or cached in an ETL and would reside in tables similar to the source of the data. Although not required, it appears to be a prudent decision to stage data before loading the data warehouse, especially with a larger system or scope of the data warehouse. While having the data in a staged location, it gives the ETL the chance to complete the middle step of transforming the data and fixing any abnormalities along the way. Once complete, the loading of data into dimensions and facts that are the usual makeup of the data warehouse is then the next rational step.

4. Categories of Decision and Decision-Making

In case of warehousing; designing a data warehouse and its maintenance are also two entirely different phases. Hence in warehousing after the design, equal attention should be paid for maintaining the quality of warehouse. Warehouse is a strategy used for making efficient decisions hence the quality of decisions in warehousing should be taken care. A decision can be categorized on the basis that whether it will satisfy the goal or not. Hence a decision can be categorized as Good quality Decision or Bad quality Decision. Good Quality Decision is that decision which satisfies the goal up to a desired level, which is called threshold value. Threshold value of a goal is that value, if that is achieved then goal is considered to be satisfied. Bad Quality Decisions are those decisions, which are not able to reach the threshold value of the goal hence they are called Bad Quality Decisions.

For a Quality Data Warehouse most of the decisions made should be of good quality otherwise the quality of the ware house would deteriorate. A Decision- making can be done by two ways: Experience Based meaning by here the decision Maker makes the decision on his previous experience and the Reasoning Based where the decision is done entirely by following proper procedure, by exploring all the alternatives and then choosing the best one. Both have their own benefits. Sometimes experience based decision give better results than reasoning based.

5. Conclusions

In this paper we have focused on the Decision Environment in an organization and we have considered all the issues related to the Decision by using Decision Model. Now these issues must be taken care for making better organizational Decisions and these should be stored in the warehouse along with goals for the future reference. Hence through this way a better decision environment can be made.

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