

Realizing Baosteel's Technology & Quality Data Warehouse Based SAS®

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ABSTRACT

In this paper the distributions of Baosteel's technology and quality data are described at first. How to realize the Baosteel's Technology & Quality Data Warehouse (BTQDW) based SAS® software is discussed in detail.

KEYWORD

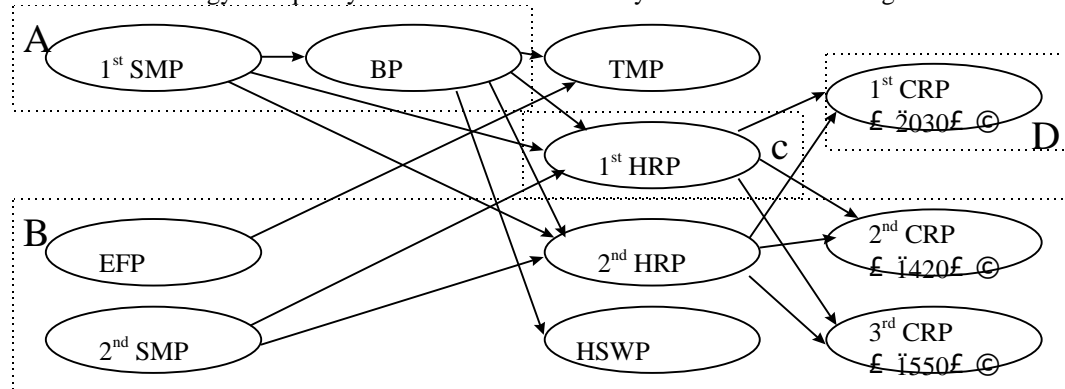
Baosteel, SAS/DWA™, SAS, Data Warehouse

INTRODUCTION

There is a very large variety of operative data saved and stored since Baosteel had been put into production. But since then there are no good ways to apply the data resource for Baosteel's advanced development. Two reasons are concerned: the first is the situations of Alone Island of Information (AIOI), the information co-operations among the producing areas is very difficult; the second is that there are no effective tools to be used to process the data. Based the knowledge of the actual situations and data warehouse technology we plan to construct the BTQDW to help the operators who work with the quality controls.

DATA DISTRIBUTIONS

The technology and quality data is distributed at many AIOIs indicated in Figure 1.



A ---- IBM 4341

B ---- IBM 9672

C ---- IBM 4381

D ---- IBM RS6000

(1st SMP—1st Steel-making Plant, BP—Blooming Plant, TMP—Tube-making Plant,

1st HRP—1st Hot Rolling Plant, 1st CRP—1st Cold Rolling Plant,

EFP—Electric Furnace Plant, 2nd SMP—2nd Steel-making Plant, 2nd HRP—2nd Hot Rolling Plant,

2nd CRP—2nd Cold Rolling Plant, 3rd CRP—3rd Cold Rolling Plant,

HSWP—High Speed Wire Plant)

Figure 1: The Distributed Situations of Baosteel's Data

The distributed situations listed in Figure 1 is very unfit for the Technology & Quality Analysis (T&QA) works. We should design the data models based the T&QA requirements and then develop the data-getting applications. So BTQDW can be defined as a set of integrated information interfaces based the T&QA works.

THE T&QA DECISION SUPPORT FRAME OF BAOSTEEL

The aim of T&QA works is to improve the quality controls decision. So the T&QA can be developed to Decision Support Systems and the BTQDW can be used as the common information platform of the DSSs. The T&QA decision support frame of Baosteel can be shown as Figure 2.

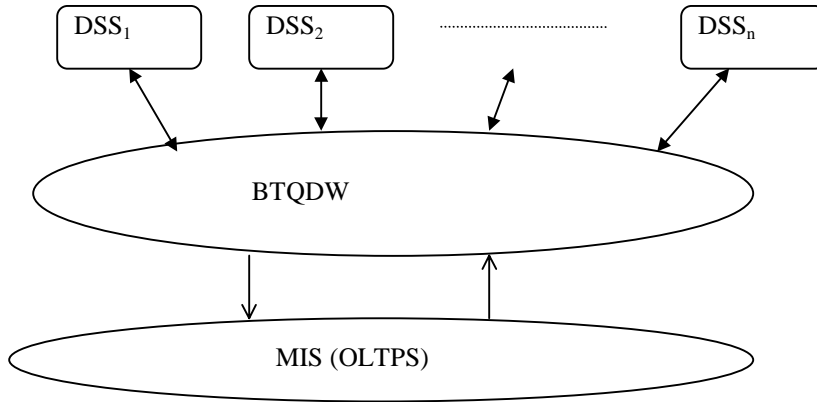


Figure 2: The T&QA Decision Support Frame Based BTQDW

Like Figure 2 we can regard the BTQDW as information platform oriented the quality management decision. It's functions are to get, convert, standardize, clean and integrate the distributed technology and quality data to open data/information presentation formats which suit to the quality management DSSs. The frame, as a integrated information obtaining solution, will setup a tight connection between the DSSs and OLTPs and it's running infections to OLTPs will be decreased to the lowest level.

THE DATA WAREHOUSE SOLUTION BASED SAS

In the data warehouse solution based SAS the data requirements are embodied with a set of concepts [1], such as ODD - Operation Data Definition, Detail Table/View, Subject, Data Mart, Summary, Information Mart, which are at different abstract levels like Figure 3.

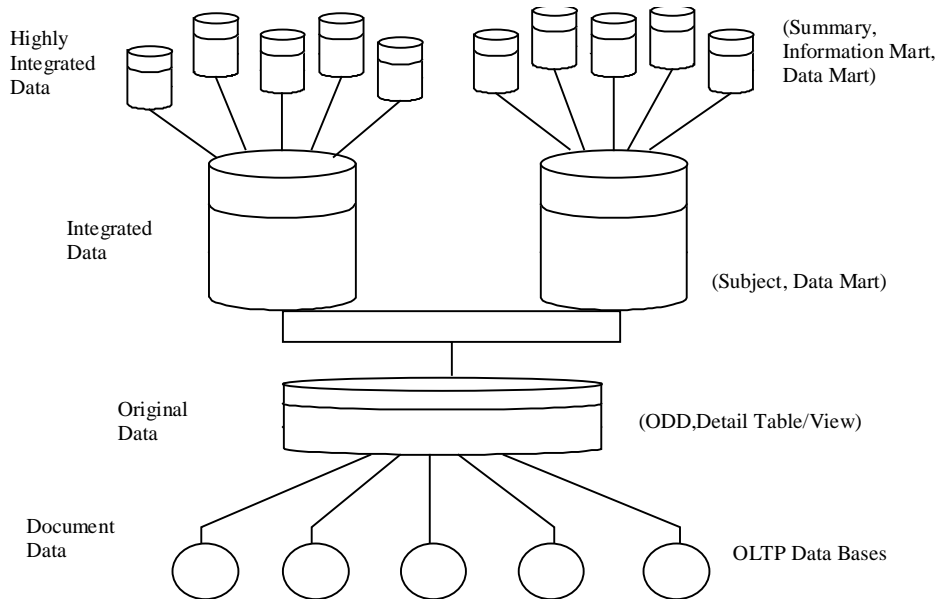


Figure 3: The Abstract Levels of Data Formats in SAS/DW

MetaData [1] is the center concept of the data warehouse solution based SAS. The SAS/DWA production has been constructed as an integrated data warehouse development environment based MetaData and it can help the IT operators to develop a useful data warehouse quickly. With SAS/DWA and the other SASproductions a whole solution is taken out like Figure 4.

REALIZING BTQDW BASED SAS

Based acknowledge of SAS DW solution, the physical structure of BTQDW can be designed into full distributed or semi-distributed or centralized frame. The physical structure of BTQDW, according

to the distributed situations of the Baosteel's T&QA data and system capability as well as information safety requirements, should be designed into semi-distributed frame which is shown in Figure 5.

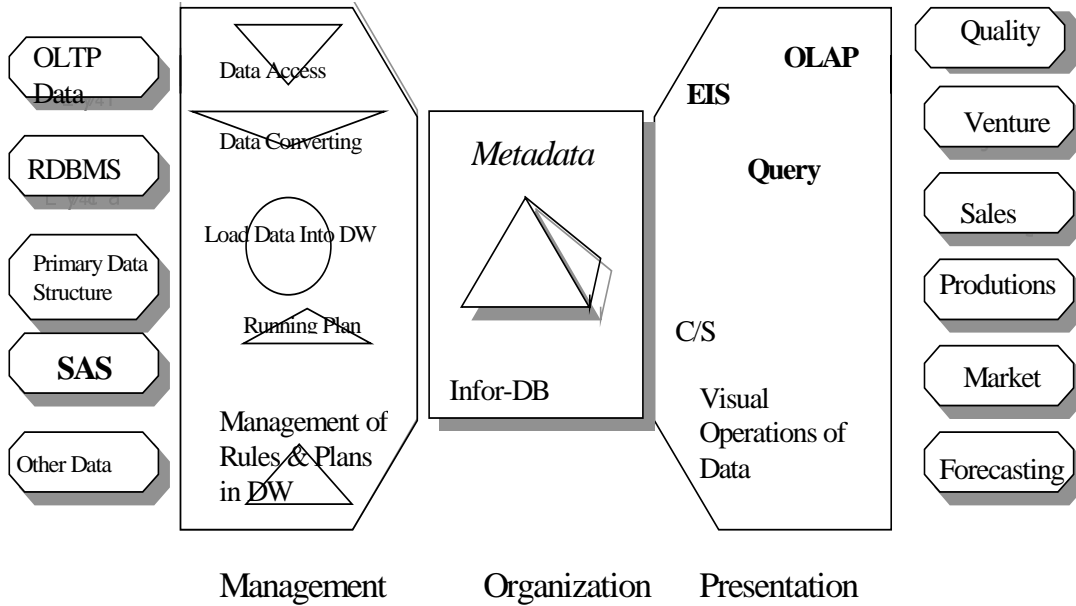


Figure 4: The Whole DW Solution of SAS

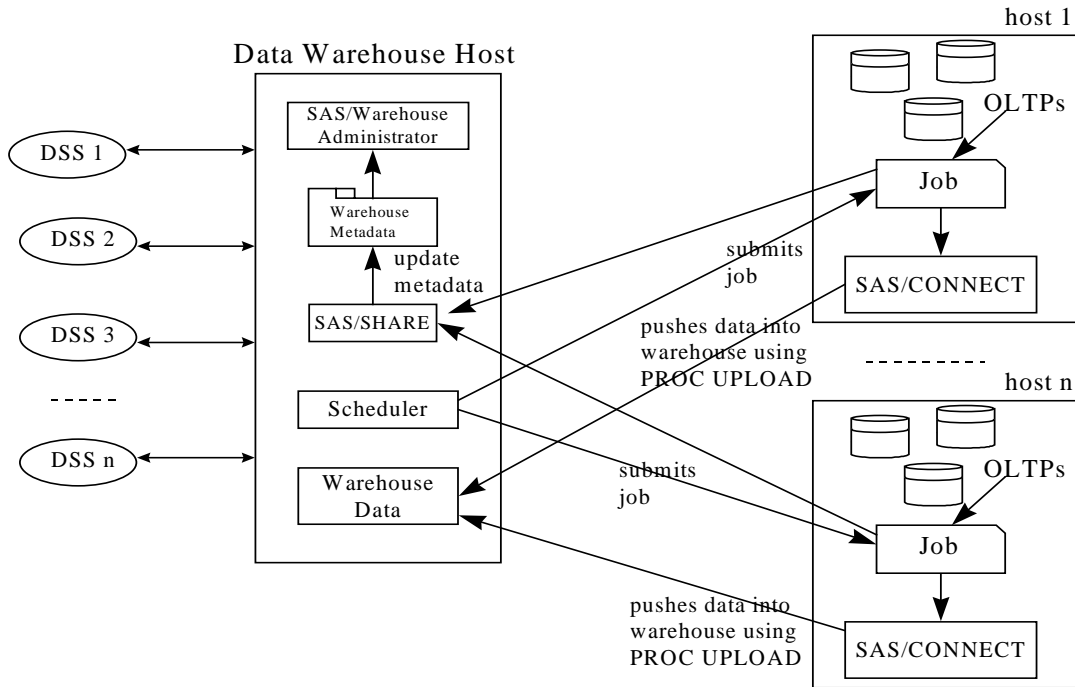


Figure 5: The Physical Structure of BTQDW

CONCLUSION

Concerned with the T&QA requirements and the distributed situations of Baosteel's data a technology and quality control decision support structure based SAS DW solution has been discussed. And an available way is pointed out to improve the use of T&QA data.

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REFERENCES

[1] SAS/Warehouse Administrator™ User's Guide, Release 1.1, First Edition, SAS® Institute Inc., 1997.