Implementing Information Technology to Effectively Utilize Enterprise Information Resources

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EXECUTIVE SUMMARY

This is a typical case of implementing information technology in order to assist an enterprise to effectively utilize its production information resources. The enterprise, a world-class leader in the pharmaceutical industry, currently keeps a large number of technical research reports on shared network media. These reports contain scientific specifications extremely essential to the enterprise's final products. In order to utilize these reports, a researcher has to navigate and literarly read through each report to identify whether it is relevant to what he/she is currently working on. Often times, researchers find it more feasible to create their own reports rather than wasting time and energy on the searching process. Our solution to the problem is to create an information system which will keep track of these reports, provide a concise synopsis of each report, enable the researchers to search using keywords, and give a direct link to locate that report via a friendly Web-based user-interface.

BACKGROUND

The subject company is a world leader in life sciences focused primarily on two core business areas: pharmaceuticals and agriculture. Its dedication to improving life has been through the discovery and development of innovative products in the areas of prescription drugs, vaccines, therapeutic proteins, crop production and protection, animal health and nutrition. The company is also involved in the research, development, production, marketing and sales of organic and inorganic intermediate chemicals, specialty fibers, polymers, pharmaceuticals and agricultural chemicals. The company employs over 95,000 professional employees in more than 120 countries around the globe. Financial data are shown in Appendix A of this case.

SETTING THE STAGE

The company uses SAP Enterprise Integrated Software. SAP integrates and automates business processes starting with the procurement of raw materials, human resources, manufacturing and ending with the sale of the finished products. In order to manage the organization, the Decision Support

Department frequently requires its employees, report developers, to generate various reports to respond to numerous types of queries. These reports are the major source of information for the organization to make decisions at any level of management. However, these report developers are not permitted to directly access the SAP database because of the following reasons:

1. Direct access of the SAP database would greatly slow down the SAP system performance.
2. The generic format and contents of the reports generated by SAP do not have specific use for most users.
3. Reconfiguring SAP to generate specific reports is very expensive since it is huge and written in ABAP (which is a German programming language), which makes it even more expensive to hire a programmer who knows ABAP.
4. Reconfiguring SAP would make it more difficult for the organization to easily upgrade to newer versions of SAP.

Therefore, the organization decided to set up a process in which data from the SAP tables are automatically copied to DB2 tables. The DB2 tables are immediately updated whenever the SAP data is changed. The SAP database is stored on Oracle tables on UNIX servers while the DB2 database are kept into IBM-DB2 servers. The company also decided to utilize a user-friendly report generator called Impromptu as their primary choice to access the DB2 database tables.

These reports cannot be generated by running a simple query on the DB2 tables because these reports often include computations which convert different sets of data into more complex information, such as calculating cycle-time for a product from the moment the raw materials are acquired in the warehouse to the moment the finished products are completed. This part of report generation takes the longest time because the formulas created must be tested for their accuracy. Due to the nature of the company, we are not at liberty to show samples of their actual reports. However, we have attached some general purpose sample reports that can be derived from the Impromptu report generator (see Appendix B).

Impromptu report developers individually generate their reports and store them on a shared network location. Currently, there are more than 5000 reports and close to 60-70 are created daily. However, storing these reports on a shared network location is of little or no use to the Impromptu report developers. Each time a report is needed, developers often start making an Impromptu report from scratch even though a closely similar report may have already been available on the network. Searching through the 5,000 plus reports is both time consuming and frustrating. A developer has to retrieve each report and read through it to determine whether or not it is relevant to his/her current needs. Almost all developers prefer to start from scratch rather than try to search the network. A single Impromptu report could be very costly since each may take anywhere from 15 minutes to 12 months to generate, depending on the complexity of the report. The cost of generating a report can be broken down into:

• Searching the database tables for the required fields.
• Analyzing and deciding on the logical combination of these fields, then generating the correct mathematical and statistical functions required for the report.
• Testing the accuracy of the formulas on the report.
• Fully documenting the report.

Each Impromptu report is saved in two formats, .pdf and .imr format. The .pdf format is a snapshot of the report that can only be viewed using Acrobat Reader. The .imr format, on the other hand, represents the executable version of the report which can be "run". The .pdf format is necessary as an Impromptu report developer can quickly glance to decide if it is the report that he/she needs. This is important because "running" an Impromptu report is a CPU time-consuming operation.

CASE DESCRIPTION

The first step in our problem-solving approach is to explicitly and clearly identify users' requirements. We used the personal interviews technique (described in Dennis and Wixom, 2000;

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