4. Approach to the solution

4.1. Introduction

This chapter describes the method used to build the business intelligence software for the DFCC group.

4.2. Why it is not feasible to use COTS software?

There are many tools which can be used for the knowledge management work. Such as [9]

- Business Objects

Business Objects continues its reign as the leading BI tools vendor. This is a reporting tool thus the Bank would need to generate a Data warehouse to deploy this reporting tool.

- Cognos

Cognos has pursued a two-pronged strategy of developing and marketing BI tools and financial performance management applications, with recent expansion into other related performance management markets such as workforce analytics. This is also a reporting tool.

- Microsoft

MS has embedded BI tools that are bundled with Microsoft SQL Server. These database-embedded tools include SQL Server Analysis Services and Reporting Services. As part of its broader business analytics offerings, Microsoft also includes SQL Server Integration Services within SQL Server. Its other related tools that the company positions within the business analytics stack include Microsoft Excel, with specific Excel 2007 features for BI, and Performance Point Server, a set of performance management applications to be released

- Hyperion

Hyperion's major product line includes financial performance and strategy management applications, where company has been the market leader for years.

All the above tools are mainly front-end reporting tools thus the DFCC Bank needs to create the data warehouse in-order to use any of the above tools.

But for DFCC it would be hard to buy commercial off the shelf (COTS) software and implement in the bank as it will require a full revamp of the existing OLTP systems. Vendors like Oracle have their own banking application and the business intelligence/ knowledge management tools [6] within the same product. But with the bank who has invested in the new OLTP systems in the recent past are reluctant to reinvest large amounts of money for a fresh system.

Building up data warehouse for any company is a specialized effort, where a heap of customization is involved. for instance the internal dimensional model of the data warehouse would depend on the business requirement of the company, unlike some standard data structures supporting an OLTP systems. This is one of the main reasons why an off-the-shelf product cannot be just plugged in and expect all the analytical needs to be taken care of.

As the banks main systems run on Oracle Database it was preferred to generate the data warehouse using Oracle technologies using Oracle Warehouse Builder/ Business Intelligence tools as the integration between the warehouse and the Databases are relatively easy. For the front-end also it was decided that the available tools on Oracle Suite would be most suitable as the integration would be smooth.

Thus it was decided to build a new MIS for the Bank using products within the Oracle Suite.

4.3. Development Strategy

Due to the nature of the project, a slightly different development methodology was used as opposed to common methodologies such as waterfall or any other above (chapter 3) mentioned models. Since a data warehouse initiative is an ongoing process rather than being restricted to a defined set of interfaces and reports, the following development lifecycle suited this project the ideally, hence it was the methodology adopted for carrying out this project.

4.3.1. Business dimensional lifecycle

A Business dimensional life cycle diagram (which was taken from 'The Data Warehouse Toolkit' [7]) is given below to better explain the methodology followed.

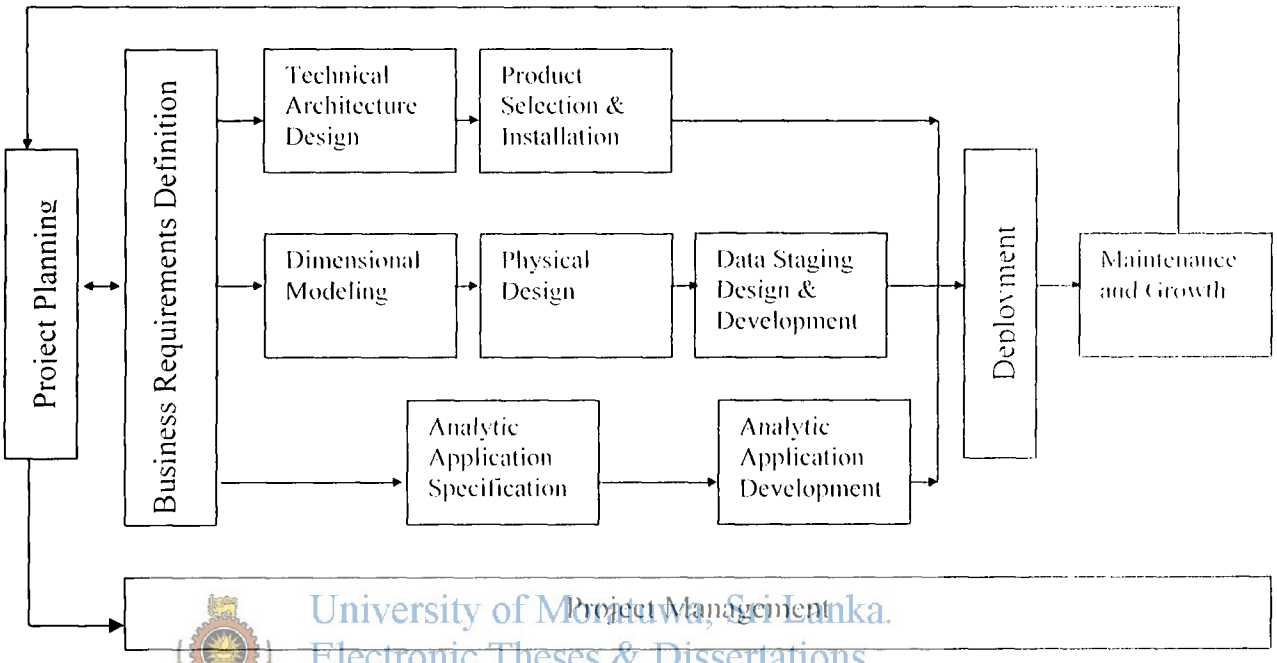

Figure 4-1: Business Dimensional lifecycle [7]

The above Business dimensional lifecycle model (as explained in [7] 'The Data Warehouse Toolkit') begins with the major task of project planning which involves many activities such as evaluating the readiness of the organization with regard to data warehouse initiative, the scope of it and the cost effective aspect. The next task, which is closely associated to project planning, is the Business requirement definition. As shown in the diagram, a two-way arrow has connected both these task. This indicates the importance of aligning the project with at least some of the critical business requirements, since they would act as the motivational factor for the project to succeed. The above two major tasks are followed by three parallel tracks described below.

Technology Track – The first task in this track decides upon technical architecture design to be used in order support the integration of data from different sources, which may happen to be latest DBMS centric OLTP systems or age old file based legacy systems. Once the design has been decided upon, we go on to the next task of

product selection, not vice-versa. This emphasizes that we should not be dependent on products already selected to finalize our technical architecture design.

Data Implementation track – The second parallel track on this diagram starts off with Dimensional modeling part where major effort is made on trying to create a model which would take account of delivering all feasible business requirements and more. The next task would be to transform the dimensional model to physical design. One of the main things considered during the process would be performance or query response. This has a lot to do with how we partition the data, the type of indexes that is used and aggregation strategy followed. The final task on this track would be Data staging design and development. Here we plan and develop procedures to retrieve the data from operational systems, place them in intermediate staging area for data cleansing and categorizing and finally to populate the data warehouse with the initial load and then the subsequent regular loads as required.

Analytic Application track – Two tasks are involved in this track, first being Analytic application Specification where specifications are prepared to define the behavior of the analytic application in line with business requirements. For the project to be a success, this should satisfy a major portion of analytic needs of the application users. The next task would actually proceed into the effort of developing the analytic application.

Once all of the above parallel activities are completed then comes deployment stage. The project management effort happens right throughout the project as indicated. Unlike other regular transaction systems, a data-warehousing project needs considerable maintenance effort after deployment, which is depicted by the next activity box. Once users realize the potential uses of the data warehouse it is most likely that the data warehouse scope would grow by taking in more operational data from other system in the next iteration which is depicted by the arrow going back to the planning stage.