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## An Economic and Modern Business Intelligence Solution for Textile Industries in Bangladesh

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**Abstract-** Textile Industries are doing most promising business in Bangladesh from last few years. We are already in top five garments exporting country list and the demand of our garments product is increasing day by day both in our country and outside the country. Because of increasing demand of this sector textile industries are also growing very fast in number. To meet the end users demand now textile industries have to compete with the quality of others so that they can satisfy the need of different users of garments product. Analyzing user mind is really a tough task to grow the textile business with latest trend and mode of new generations. Business Analytics can make this tough task very easy by analyzing different sales report with different perspectives. To meet the new trend and demand of new generation, proposed business analytics setup of different technologies is much better for the textile industries compared to existing systems used in Bangladesh.

**Keywords:** *textile business; business intelligence; BI; textile business analytics; ETL; DHW; tableau; business data visualization.*

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# An Economic and Modern Business Intelligence Solution for Textile Industries in Bangladesh

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**Abstract-** Textile Industries are doing most promising business in Bangladesh from last few years. We are already in top five garments exporting country list and the demand of our garments product is increasing day by day both in our country and outside the country. Because of increasing demand of this sector textile industries are also growing very fast in number. To meet the end users demand now textile industries have to compete with the quality of others so that they can satisfy the need of different users of garments product. Analyzing user mind is really a tough task to grow the textile business with latest trend and mode of new generations. Business Analytics can make this tough task very easy by analyzing different sales report with different perspectives. To meet the new trend and demand of new generation, proposed business analytics setup of different technologies is much better for the textile industries compared to existing systems used in Bangladesh. Textile industries can use this solution by collecting data from their different sales point for better production policy which will satisfy the end user of the textile product as well as enhance the textile business.

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## I. INTRODUCTION

Most of the textile industries in Bangladesh still using manual procedure for their different purposes. They are using paper-pen for different business process and report generation which is really time and more human resource consuming. They engage different unit or department for different low-level and high level reports of production efficiency, sales, profit, market share etc. And they don't have a central process to maintain all business analytics reporting task.

However, few of the textile industries are now following some automated IT approach for their business intelligence reports at different level (operational level, managerial level, high management level). Apart from manual calculation and reporting process we have found bellow automated processes:

- Some default analytical reporting panel along with ERP software of textile industries

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- Crystal report or other reporting service which generate reports from 2D relational databases
- Excel Analysis from various raw data

Many textile industries are using ERP software for proper tracking of materials, production process and buy-sell method of the products/materials involving whole supply chain management procedure. Actually main purpose of these software solutions is enhancing proper resource planning of the enterprise whether resource could be human, raw materials, finished products or any virtual method or product. Along with proper planning of procurement of materials, processing of material to make finished product and selling finished product ERP software also provide some default reports to analyze on these data and process. This kind of analytical reporting actually can provide only operational insight of the product. But, for strategic and long term forecasting these default reporting modules are not appropriate. Many reputed organization use their transactional databases as direct data source of analytical reporting and do some limited calculation and generate different custom reports from small volume data of targeted transactional database. But, for better forecasting we need at least last 5 years historical data which should be maintained in data-warehouse in proper format. After that we can do our intended analysis for textile business forecast on that big data source of historical data keeping transactional database free from the load of analysis [1].

In many textile industries different departments use excel for keeping various records along with some business calculations. And when higher management seek for a specific report from them, they integrate excel records of different to generate some excel reporting and most of the cases they use pivot table function for generating reports. But, these reports provide very specific and small range of analysis [2].

## II. PROPOSED MODEL

This thesis-work ensures proper business analysis of textile industries in Bangladesh following bellow steps:

- Build Data Warehouse using Inmon Model
- Define Business Analysis Logic
- Use an Advance Reporting Platform

Now-a-days most of the textiles companies are using excel analysis to get some insight which is not

able to produce better forecast and report. Many of them are using the default reporting features of their ERP software which is not able to provide better customized business analytics. To make a stand-alone business analytics solution here SQL Server 2012, SQL Server Integration Service (SSIS) and Tableau Reporting Server is used. Raw data collection, data cleansing, data conversion tasks will be done by SQL Server Integration Service which is an automated tool to gather data and make data into useful information for analysis. Different business calculation and analysis will be done with SQL Server 2012 which could be treated as analysis layer. For some advance data analysis and reporting to show the business insight [2] in a visual representation Tableau reporting server is used which can act as a server for different reports. In Tableau there are many analyses and reporting option with different customize configuration.

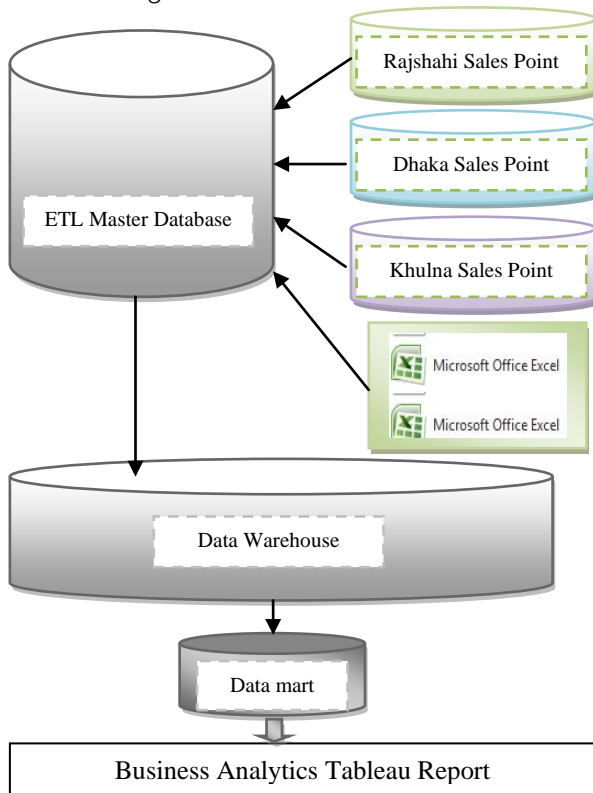


Fig. 1: Textile Business Analytics Model

Here, in Fig. 1 raw sales data and other related data of textile industries is collected from different sales points. Business analytics require a huge amount of historical data of a business and textile business data should be collected from different sales points and other related transactional database of textile business. Fig.1 shows the complete analytical model where raw data extract-transform-loading (ETL) process is done first. In this thesis, raw transactional data is collected from some regional database (Rajshahi sales point, Khulna sales point and Dhaka sales point) and related sales data which is maintained in excel data format. Raw data

collection and transformation process is done in the ETL server database which is finally fed to data warehouse which contains huge collection of textile business data in a structured format. After building the data warehouse textile business reporting specific data mart is formed, on which many business logic is employed through sql (standard query language) script with some stored procedures. For business analysis and different analytics reporting tableau report server is used where tableau server give many option for analytics to get business insight [3].

### III. TEXTILE BUSINESS ANALYTICS AND SMART REPORTING

Analysis is the most important part for a system development. Before implementation analysis helps to find out the requirements of the system going to develop. Through BI, textile industries take the advantages on ending of textile quotas and inducing producers to race for capturing maximum global share of the world textile markets, uncertainties due to continuing trade disputes, Changing competitive environment and Globalization and improve their:

- Merchandise Management
- Loss Prevention
- Financial Analysis
- Category Management
- Sales and Marketing Analysis
- Employee Performance Management
- Customer Analysis and Relationship Marketing

Textile manufacturers and apparel retailers can look at BI to improve purchasing, profitability, marketing efforts, inventory and store management, customer service and financial reporting. Today, systems are built to collect selling information via the sales documents in near real-time. Manufacturers can use affordable technology to monitor the "sell through" information daily and are able to compare the rate of sale to the actual stock position at the retail location. If "stock outs" are occurring, manufacturers can immediately check inventory availability or identify a "like product" for shipment. This creates a partnership with the retailer, alerting them to possible sales losses and offering additional stock for immediate delivery [4].

#### a) Analysis Environment

- SQL Server 2012
- SQL Server Integration Service (SSIS)
- Tableau Analysis and Reporting Server

#### b) Analysis and Analytics Reporting

There are many business analytics reporting possible with the same data feed in the tableau reporting server.

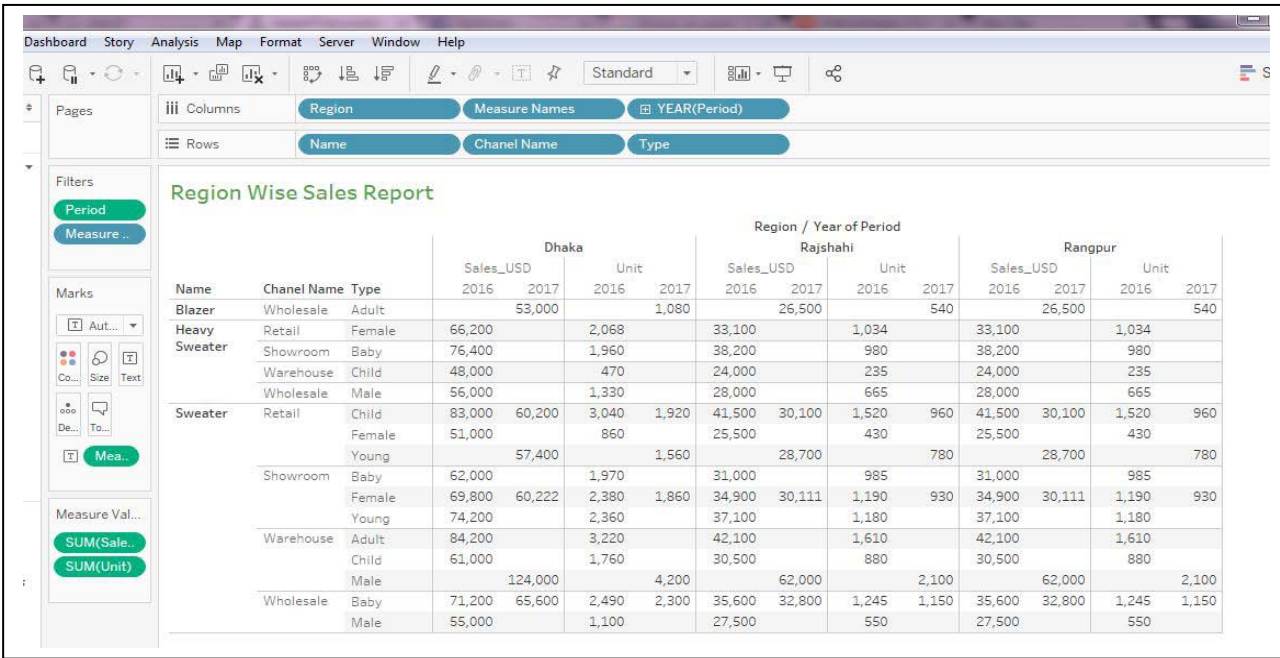


Fig. 2: Region Wise Sales Report with Unit Values(Tabular Format)

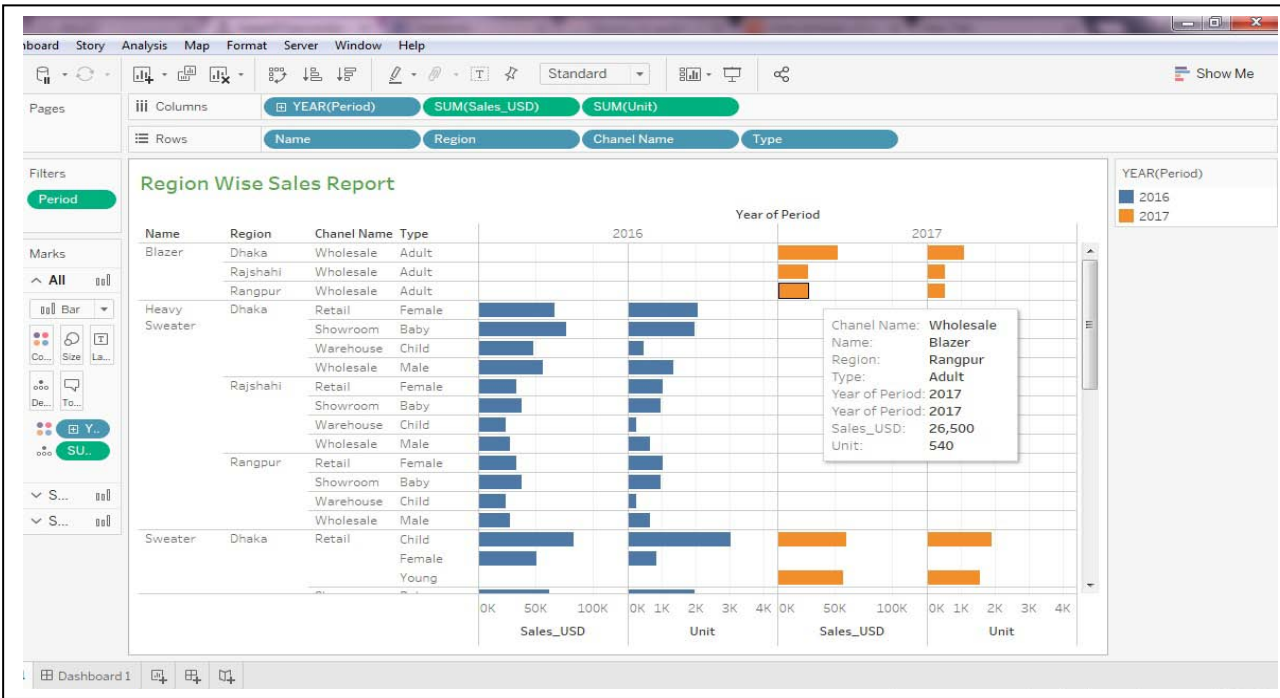


Fig. 3: Region Wise Sales Report with Unit Values (Tableau Graphics)

Tableau sever has a data analytics engine which automatically define dimension and measures from the data sources feed to tableau [5]. It gives us drag and drop facility to place our dimensions in rows or columns to view our measure information from various angle. From the analysis with different dimension and measure there can be generated many report in tableau

which could be viewed in any devices like; tab, computer, mobile.

c) Graphical Comparison

Business Intelligence [6] reports can be generated in many perspectives like; channel-wise sales, period-wise sales, product-wise sales and units,

region-wise sales and units of textile product. Fig. 3 shows the region-wise sales and units of different products with respect to different channel and product type where Fig. 4 shows the same thing in more visual interface.

After making proper use and analysis of proposed model, it is identified that this arrangement is very much capable of handling textile business analytics for forecasting the future need in Bangladesh [7].

#### IV. CONCLUSION

In this thesis paper, we have worked to get a suitable business analytics solution for textile industries in Bangladesh. Considering the economic and other technical aspects, our proposed model with the combination of two different servers and services works better to get complete BI solution for textile industries. BI reporting specially tableau reporting makes the business outcome easy to visualize for higher management. And higher management can make the right decision very fast from this automated system of business analytics. Textile industries will be benefited highly for making proper production plan of garments product by using this business analytics solution.

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