

Data Mining and its Implications in the Banking Sector

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Abstract— Data mining has become a strategically important area among all business organizations including banking sector. It is a process of analyzing the data from various primary data and summarizing it into information. Data mining helps the banks to look into the future needs of funds and investment. Grouping of data into information helps us to discover the known and unknown relationships in the data. In the present day business environment, customers have so many opportunities with regard to their investments. Early data analysis techniques were oriented towards extracting quantitative data characteristics and its implications only in financial accounting. These practices facilitated useful data interpretations for the banking sector only to certain extent. Customer satisfaction and its retention are the most important factors to be analyzed in today's competitive banking industry. In order to cope with the today's globally competitive environment banking industry need to be strategically competitive. This paper analyzes data mining and its implications in banking sector like financial analysis, cost analysis, funds management, external environment analysis, customer satisfaction, customer retention, global marketing and risk management.

Keywords— Banking Sector, Financial analysis, financial management, Data mining

I. INTRODUCTION

Banks are expected to manage all the information from shared data resources. It promotes seamless integration of all the information flowing through a bank. Banks face great difficulty in quickly making out the required information because of the voluminous data. Banks are constantly searching for some means or mode to overcome this debacle. The inconvenience not only pinches on monetary profits but also antagonizes customers who are made to wait for a long time for a small piece of data.

Technological developments have equipped the banking industry to open up a new arena. Banks have realized that customer relationships are an important factor for their overall development. Banks should have an upcoming strategy that can help them to build prolonged relationships with their regular customers and thereby increase their revenues and

profits. Present day environment of banking industry focuses on long lasting customer relationships. The challenge the banks face is how to retain the most profitable customers and how to do that at the lowest cost. At the same time, they need to find and implement this solution quickly and the solution to be flexible. Traditional methods of data analysis have long been used for financial accounting. Data analysis require complex and time consuming investigations that deal with different domains of knowledge like financial, economics, business practices and law. In countries like India, Bankers face more problems with this data analysis. Using data mining, it is simple to build a successful model and materialise the report into meaningful information to the banks.

The following figure illustrates the proposed data mining and its implication.

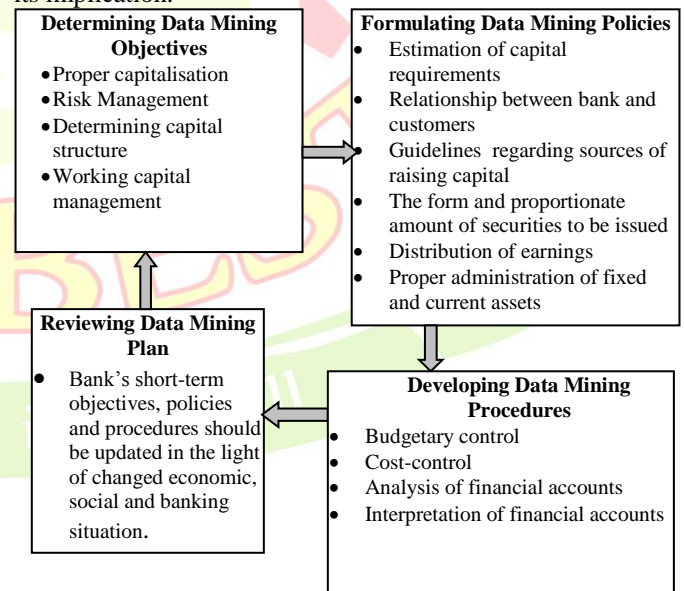


Fig. 1. illustrates the proposed data mining and its implication.

The proposed data mining and its implications in banking sector envisages a comprehensive planning process to be practically followed by the banks for its effective

implementation. The entire planning process is suggested below:

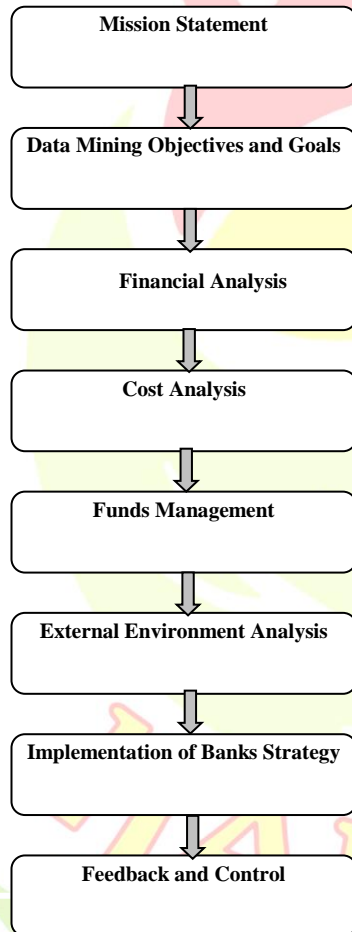


Fig. 2. planning process

The practical hints for the above implications in banking sector are recommended below:

II. STATE THE MISSION

The success of any banks depends on the ability to understand its customers. The advent of Business Analytics has created new ways for banks to metamorphose the vast amount of data they have into valuable knowledge, in order to gain customers' insights, and improve customer relationships. It has to define the banking activities in terms of present service offering and redefine the banking business based upon customer needs and desires. The same must be communicated to all concerned to accomplish the bank's mission. Banks should adopt the two way communication with staff at all

levels and the use of metaphors and analogies to explain the mission.

III. STATE THE DATA MINING OBJECTIVES AND GOALS

The overall project goal is to build a virtual laboratory for banks in data mining and data intensive sciences. The main objective of data mining is to identify valid novel, potentially useful, and understandable correlations and patterns in existing data. State the long-term objectives in terms of capitalisation and capital structure, state the immediate and short term goals in terms of working capital management and state the importance of customer satisfaction, customer retention, global marketing and risk management

IV. CONDUCT THE FINANCIAL ANALYSIS

There should be a proper data mining in finance by discussing financial tasks, specifics of methodologies and techniques in this data mining area. It includes time dependence, data selection, and forecast horizon, measures of success, quality of patterns, problem identification and relational methodologies.

Proper financial analysis must be done with the help of following tools.

- Comparative financial statements
- Common size financial statements
- Trend percentages
- Cash flow analysis
- Ratio Analysis
- Cost volume profit analysis

V. CONDUCT THE COST ANALYSIS

Marginal costing techniques must be used for the computation of costs of various banking products and services. It covers use of neural networks in portfolio management, design of interpretable trading rules and discovering money laundering schemes using decision rules and relational data mining methodology

VI. EVALUATE THE FUNDS MANAGEMENT

Financial data analysis is used in many banking sectors for accurate analysis of consumer data to find defaulter and valid customer. For this different data mining techniques can be used. The information thus obtained can be used for Decision making. Proper financial planning should be there for the easy implementation of funds management. Working capital management have to be properly managed for the smooth flow of business. Leverages of the banks must be calculated for the effective exploitation of profits. Cost of capital is also required for the proper decision making of various in flow and out flow of funds.

VII. ANALYSIS OF THE EXTERNAL ENVIRONMENT

Inflation rate, economic condition, RBI policies and directives have a great impact in the banking sector's future development.

VIII. IMPLEMENTATION OF BANKS STRATEGY

Put the plan into action, co-ordinate the financial management activities and see how the objectives are achieved and to make contingency planning are the major elements to implement the bank's strategy.

IX. REGULAR FEEDBACK AND CONTROL

In order to improve the efficiency of banks the following steps need to be followed.

- a) Measure the results
- b) Evaluate the results
- c) Analyse the pitfalls
- d) Take corrective actions
- e) Conduct Financial Audit

X. CONCLUSION

The extraction of hidden predictive information from large databases is a powerful new technology with great potential to help banking sectors focus on the most important information in their data warehouses. Data mining information predict future trends and behaviours, allowing businesses to make proactive, knowledge-driven decisions. The prospective analyses offered by data mining move beyond the analyses of past events provided by retrospective tools typical of decision support systems. Data mining information can answer banking business questions that traditionally consumed too much time to resolve. Most banking companies collect and refine massive quantities of data. Data mining techniques can be implemented rapidly on existing software and hardware platforms to enhance the value of existing information resources.

Data mining focuses to extract vital information from existing huge amount of data and enable better decision-making for the banking sector. They use data into a common pool to combine various data from databases into an acceptable format so that the data can be mined. The information received from the data analysis is taped and used throughout the banking sector to facilitate decision-making. Those information are very useful to the banking sector for better targeting, acquiring new customers, providing segment based products, analysis of the customers, transaction patterns over time for better retention and relationship, risk management and marketing.

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