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RETAIL BANKING AND DATA MINING AS WHEELS OF A CART

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ABSTRACT

Huge data in the form of customer information, transaction details, risk profiles, credit card details, credit limit and collateral details, compliance and Anti Money Laundering (AML) related information, trade finance data, SWIFT and telex messages is collected in banking on day to day basis. Numerous decisions are taken in a bank daily. These decisions include credit decisions, default decisions, relationship start up, investment decisions, AML and Illegal financing related. Various tools provided by bank are required behind making such decisions. Being a manual process it is error prone and time consuming due to large volume of transactional and historical data. Patterns and knowledge can be mined from such huge volume of data that in turn can be used for this decision making process. Here, various data mining techniques are reviewed which could be applied in banking. Emphasis is to provide an insight into how these techniques can be used in banking areas to make the decision making process easier and productive.

Keywords: Data Mining, Banking, Unstructured Data, Default Detection, Customer Classification, AML.

I INTRODUCTION

Advancements in Information technology and digital world has lead to a new direction for banking sector. Standalone record books are being replaced by centralized databases. There are various sources to access a bank rather than visiting these days. Banking systems have become technically strong and customer oriented with online transactions, electronic wire transfers, ATM and cash and cheque deposit machines. This ease in access has resulted into increased number of transactions. Currently banks have huge electronic data repositories in their computing storage systems. Data has grown in terms of both dimensionality and size. With advancements in data mining techniques and know how, this vertex of data is turning out to be the most valuable asset of the organization. Valuable knowledge and interesting patterns are hidden in this data. There are huge potential for banks to apply data mining in their decision making processes in areas like marketing, credit risk management, detection of money laundering, liquidity management, investment banking and detection of fraud transactions in time Failures in these

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areas can lead to unpleasant outcomes for the bank such as losing customers to competition, financial loss, reputational loss and hefty fines from the regulators.

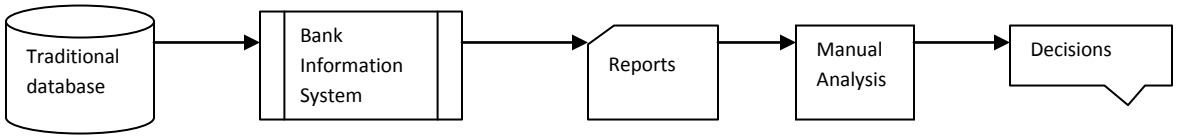

Figure 1 : Traditional Decision Making Process

Figure 1 shows traditional decision making process. All work there is mostly done by manual procedures. Decision makers go through reports generated by banking information system and use it in their decision making process. They may also use tools provided by the system for analyzing data to arrive at critical decisions. Human analysis has limitations in terms of analyzing data in big volume and generating prompt results out of that. For example, it could be possible that availing of credit card facility is gradually rising but saving accounts are being closed rapidly leading towards an alarming negative trend in the customers' turnover resulting into failure in terms of customer retention. These associations are not easy to detect through manual processing. Valuable information, if discovered from historical data can yield knowledge and predict future attributes with the help of data mining. For example, a decision support system based on data mining techniques can be employed to improve the quality of business strategies in a bank.

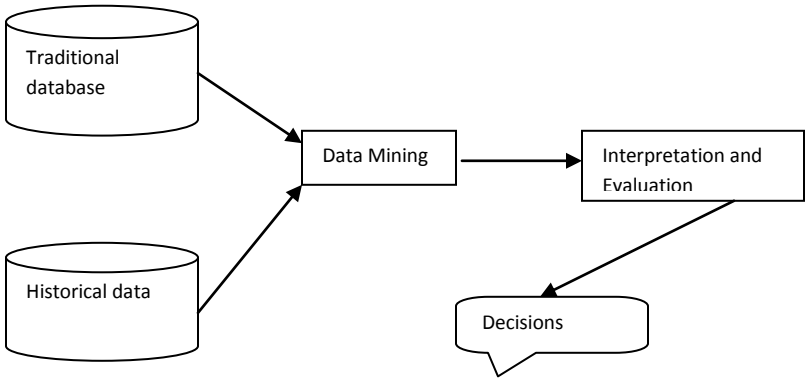

Figure 2 shows how data mining can improve decision making process.

Data mining is the process of deriving new, not obvious or relevant knowledge hidden from large volumes of raw data. The logical process flow involved in data mining and knowledge discovery is shown in Figure 3.

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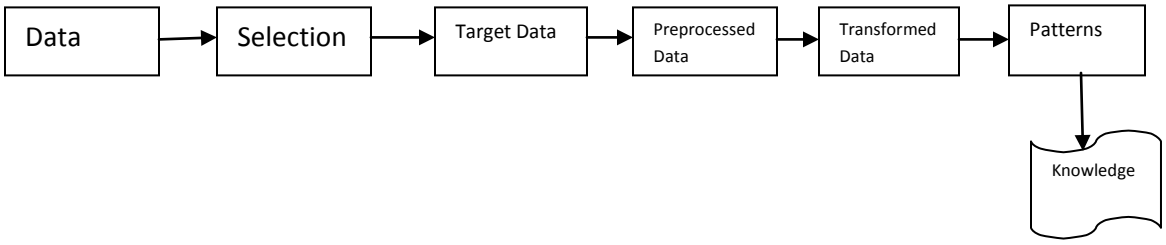

Figure 3: Steps in Knowledge Discovery

II CONCLUSION

Data mining is a process to extract knowledge with the help of analyzing patterns from existing data. It is used as a tool in banking in general to discover useful information from the operational and historical data to enable better decision-making. It is an interdisciplinary field, confluence of Statistics, Database technology, Information science, Machine learning and Visualization. It involves steps that include data selection, data integration, data transformation, data mining, pattern evaluation, knowledge presentation. Banks use data mining in various application areas like marketing, fraud detection, risk management, money laundering detection and investment banking. The patterns detected help the bank to forecast future events that can help in its decision- making processes. More and more banks are investing in data mining technologies to be more competitive.

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