

# Banking Sector and Big Data Analytics

Vaishak.D.A

B.E. Student

Dept of Computer Science and Engineering  
UVCE Bangalore, India

**Abstract**— Big Data is a phrase that refers to data sets that are so vast or complex that standard data processing software can't handle them. In today's environment, most banking, financial services, and insurance companies are working hard to embrace an entirely data-driven approach to growing their operations and improving customer service. Customer experience, operational optimization, and employee engagement are the three primary areas where advanced analytics may assist banks and other financial businesses. The method we provide is utilized to enhance product sales and analyse both branch and individual sales. To increase cross-sell and targeting, the technology is also used to discover future consumers. Graphs, diagrams, tables, and other visual aids are used to demonstrate analyses. The system contains many filters that may be used to examine sales in a particular geographic location and during a specific period. As a result, banks are assigned objectives at regular intervals, improving profitability.

**Keywords**— *Big Data Analytics; operation optimization; Cross-sell,*

## I. INTRODUCTION

In today's environment, many banking, financial services, and insurance companies are working hard to embrace an entirely data-driven approach to growing their operations and improving customer service. The analysis of the acquired data might be crucial in the banking sector, as it has shown to be a game-changer in other sectors. Many organizations are taking the necessary steps to acquire vast amounts of data for their analyses; they are in various stages of considerable data maturity.

In many situations, these early data efforts lead to a straightforward inquiry from business stakeholders: "How might this data help us address our business problems?" Customer volume has a significant impact on the level of service provided by the company. Traditional analyses and practices have a less sophisticated process of monitoring and evaluating banks and other financial services businesses, including huge volumes of client data such as personal and security information. However, thanks to Big Data, banks can now utilize this information to follow

customer behavior in real-time and provide the exact resources required at any given time. This real-time analysis will enhance overall performance and profitability, propelling the company further down the growth curve. As a result, in our suggested approach, we plan to attain the goals mentioned above.

## II. RELATED WORK

Financial experts define big data as a technology that allows an organization to produce, handle, and modify substantial data sets in a specific period and the storage necessary to support the data, characterized by variety, volume, and velocity. Every second of every day, we live in a digital world where data is saved and processed. Every day, massive amounts of data are created. Everything we do online, such as publishing Twitter feeds, Facebook statuses, and comments, as well as video, music, and photos, captures a tremendous quantity of data in seconds. Not just in social activities but also in every company, data is being saved quickly and in such large numbers that we want more effective and more powerful technological tools to process it. As a result, the notion of Big Data Analytics [1] emerges.

Traditional methods fail to cope with enormous data, so Big data is used for customer data analysis. The authors address the implications faced with changing technology and changes in the macro technological environment in paper [2]. With a large amount of data generated primarily in the financial sectors and banks, traditional methods fail to cope with huge datasets, so big data is used for client data analysis. Despite the obstacles, the authors agree that big data will be there for a long time and will transform the way we think about things, benefiting both banks and customers in the long run.

The author of this study [3] explored five approaches to use Big Data and concluded that it might be highly beneficial for businesses, particularly in the banking industry. Many technical improvements have already been witnessed in the banking sector. The banking sector has experienced tremendous growth in recent years. The banking industry is an essential element of every country's

economy. It will be of interest to scholars in various fields, including management science, marketing, information technology, and finance. As a result, banks must transition from traditional data analysis to Big Data technology. According to a Capgemini survey, only 37% of banks work on Big Data and leverage its advantages. At the same time, the remainder is still hesitant to migrate their services to Big Data Analytics. A big group of customers believes that their bank understands their needs and preferences, which can only be realized by integrating big data.

Only 21% of respondents indicated they had adopted Big Data technologies, while 42% said they plan to invest in Big Data technologies in the coming year, according to a Qlik poll. The following are three reasons why banks are adopting Big Data technologies:

1. To increase productivity within their companies
2. Customer happiness, everyday requirements, and purchasing habits should all be improved.
3. Finally, to boost total revenue and profitability

Despite the fact that Big Data technologies are still being implemented in India, we have discovered that an increasing number of organisations are going to invest in Big Data in the near future. India, as a rapidly developing country, is in a unique position to assist firms adopt technology that transform raw data into insights. According to the research, there is a critical need for Big Data in the financial sector [4][5].

Big data offers both banks and their customers a number of advantages. The functional and business advantages of large data are shown below

**Customer segmentation:** Classifying customers into groups based on various filters like age, gender, interest, financial conditions and on spending habits this allows bank to supply or deliver exactly what they are looking for to customers.

**Risk Management Fraud detection** at an early stage is a large and important part of risk management and Big Data can do as much for risk management as for fraud identification. It locates and presents Big Data on a single large scale, making reducing the number of risks to a manageable number easier.

**Customer Profitability:** BD also provides up to date customer information that helps banks identify the most important and valuable customer with less difficult.

As a result of the foregoing literature review, it is clear that a big data analytic model must be developed in order to efficiently gather data and analyse consumer actions. The suggested approach aims to accomplish the

mentioned using multiple filters, assisting the bank in gaining critical information and increasing profitability.

### III. PROPOSED SYSTEM

The bank's Big Data is imported into the Qlik Sense software, utilized to create numerous graphs. Filters for the graphs are given to aid analysis and make the program more dynamic.

There are three modules in this system. They are.

- i. **Data creation:** You must first create a database storage space on the disc before doing anything else. This is referred to as a database cluster. A database cluster is a set of databases maintained by a single instance of an up and running database server. Following installation, a database cluster will have Postgres, which will serve as the authoritative database. The Big Data (about 10 million records) will be produced and stored.
- ii. **Data loading:** To connect to and get data from multiple data sources, Qlik Sense employs a data load script, which is handled via the data load editor. The fields and tables to load are provided in the script. Script commands and expressions can also be used to alter the data structure. Qlik Sense associates the data by identifying similar fields from multiple tables (key fields) during the data import. In the data model viewer, you can see the resultant data structure of the data in the app. Renaming fields to get various relationships across tables can be used to make changes to the data structure. The data is stored in Qlik Sense when it has been loaded is stored in the app.
- iii. **Dashboard Creation:** After the data has been imported into the Qlik sense tool successfully. The system generates Qvd files. To refresh the data, you may need to change the load script to point it to suitable file locations. Several times in the script, file names are used, although they are marked. You'll also need to link the DBF files to an ODBC database. The tables that will be imported from Qvd are determined by the type of dashboards we want. Dashboards come in a variety of shapes and sizes, various tables are loaded, and the appropriate filters are applied. The

dashboards can then be updated as needed by the business user or customer.

#### IV. RESULTS

This project yielded a set of graphs that were presented across three dashboards. They are as follows:

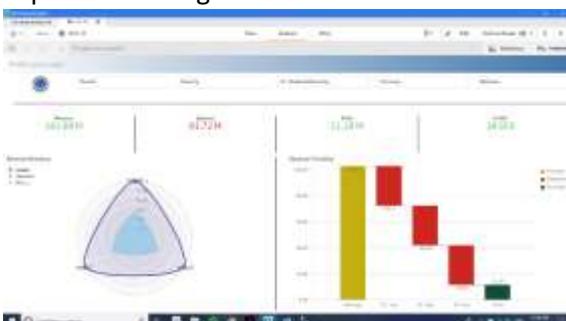
- i. Dashboard for Geographical Locations: The Revenue Analysis by Entity, Profit Analysis by Country and Product, and Revenue Breakdown by Business graphics make up this dashboard.



- ii. Sales Analysis Chart: This chart has three graphs: Sales by Country, Sales by Period, and Sales by Stage Analysis.



- iii. Profit and Loss Chart: The Profit and Loss Chart comprises two graphs: Revenue Breakup and Expense Tracking.



#### V. CONCLUSION

Big D Big Data and Analytics are currently being used throughout many areas of the banking industry, assisting them in providing better services to their internal and external clients and improving their active and passive security measures. The Indian banking industry must use the potential of Big Data to improve the services and operations it provides. Banks must improve their old technical approach and begin integrating new technologies and procedures to benefit from Big Data Analytics.

#### VI. REFERENCES

1. Shee Y. P. et al., "Big Data in banking for Marketers, How to derive value from Big Data" (white paper), Evry Innovation Lab
2. Brandtzaeg P. B., "Big Data: For better or worse", SINTEF ICT, Science daily.
3. Abhishek Srivastava, Sushil Kumar Singh, Sudeep Tanwar & Sudhanshu Tyagi. 'Suitability of Big Data Analytics in Indian Banking Sector to Increase Revenue and Profitability' 2017 IEEE.
4. Chandani A. et al., "Banking on Big Data: A case study", Symbiosis University, Pune, ARPN Journal Engineering and applied Sciences, 10(5), ISSN: 1819-6608, pp: 2066-2069, March 2015.
5. Srivastava U., Gopalkrishnan S., "Impact of Big Data Analytics on Banking Sector: Learning for Indian Banks" at Symbiosis University, ISBCC, pp: 643-652, 2015
6. A. V. Nikam, S.D. Bhoite, "Leverage of Big Data analytics for Banking Sector", Indian Journal of Applied Research (IJAR), 5(8), ISSN: 2249555X, pp. 59-61, 2015.
7. Anirban Sen. 2014. Banking on Big Data Analytics. Available from <https://www.livemint.com/Industry/F5uNVbogJfsNB7cStItoBL/Banking-on-Big-Data-analytics.html>
8. Emcien. Big Data for Banks - 5 Profitable Use Cases
9. Yin S. and Kaynak O., "Big Data for Modern Industry: Challenges and Trends", IEEE, 103(2), pp: 143-146, 2015.