Big Data Analytics on Banking Sector

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Abstract— **Big Data is a term defined for data sets that are large or obscure that traditional data processing applications are incompetent.**
In the present world, the banking sector, financial firms, and insurance companies are operating arduous to utilize an entirely data-driven method to advance their interests and improve the assistance they cater to their clients. These are the major regions where banks and financial firms can attain benefits from these are high-level analytics: client experience, performance optimization, and employee obligation. The system proposed by us is used to increase the sales of the product and to analyse both branch sale and individual sale. The system is also used to identify potential customers to improve cross-sell and targeting. We show analysis through graphs, diagrams, Tables, etc. The system has a large number of filters which can be used to analyse the sales at a particular geographical region and at the required time frame Thereby setting the targets to banks in specific intervals and thereby increasing the profitability.

Keywords— Big Data Analytics; performance optimization; Cross-sell,

I. INTRODUCTION

In the present world, the banking sector, financial firms, and insurance companies are operating arduous to utilize an entirely data-driven method to advance their interests and improve the assistance they cater to their clients. The analysis of the data which has been collected might play a vital role in finance sector has it has proven to be a game changer in the other domains. Even though many organization are making right strides towards acquiring large amount of data which is needed for their analysis, but they are at different level of big data maturity In several instances, these primary data projects lead the stakeholders of various business to a straightforward question: "How will the data which has been collected, assist us in resolving our problems pertaining to our business?" As client size increase, it dramatically influences the level of assistance offered by the company. The traditional method of analysis and practices have a less sophisticated way to monitor and evaluate the banks and financial firms, including large quantities of clients information such as personal and collateral data. However with the assistance of Big Data, banks can now employ this knowledge to frequently track customer behaviour in actual time, rendering the specific variety of services required at any given instance. Due to this, there will be an increase in profit and performance thereby pushing the organization in the direction of growth. So we intend to achieve the above in our proposed model

II. RELATED WORK

The experts of financial industry describe big data as the means which enables an organization to formulate, manage, and manipulate massive information sets in given time duration and the warehouse needed to maintain the data, and it is characterized by three V's which is variety, volume, and velocity. In present digital society, where information is being collected and concocted with every instance of time. There are tons of data which is being generated even on a daily basis. The activities that we do online, like posting twitter feeds, putting statuses in Facebook and WhatsApp, adding comments, video, and images all over the internet, accumulate a massive volume of data within a fraction of a second. Not only from the social activities but also considering from the business aspect, the data collected are being stored so rapidly and in massive amounts, that we need more substantial and high-level technological means for concocting this data. And thus, comes the concept of Big Data Analytics [1].

. In paper [2] the authors talk about the challenges faced with evolving technology and the changes in the macro technological environment, with a large amount of data generated mainly in the financial sectors and banks the traditional methods fail to cope up with enormous data, so Big data is used for analysis on customer data, there   are difficulties faced in changing the current infrastructure to the one which can accommodate the new technology the major one being finance front where a large amount of

cash is needed for training, development cost, data warehouse, etc. In spite of all the challenges faced the authors believe that big data is going to stay for a long time and is going to change the way we perceive things thereby benefitting both the banks and customers in the long run,

In this paper [3] the author considered five approaches that clout's Big Data and inferred that big data plays a critical role in various business especially in the banking domain. The banking domain has undergone rapid advancement in the technology which it has incorporated for its system. In the preceding few years, there has been an immense growth which has been observed in the banking sector, the growth of which plays a very pivotal role for the country's economy and due to this the banking domain has been a subject of importance for researchers of different fields like management science, marketing, information technology, and finance. Therefore it is vital for the Banks to change from using the traditional method of analysis to Big Data Technology. The survey which was conducted by Capgemini found out that only about 37 percent of the present banks were incorporating big data and reaping its benefits while the remaining banks weren't still ready to relocate their services on Big Data Analytics, and a broad group of clients thinks that their bank have a deep awareness of their demands and choices which can be only actualized by using big data.

The Qlik conducted a survey in which 21 % of them said they had used Big Data technologies, 42% said they intend to invest in Big Data in the coming few years. The logic why Banks must adopt Big Data technologies are:

● To enhance fecundity within their companies

● To enhance customer's content,

● To increase the overall revenues and profitability

Notwithstanding the moderately less implementation of Big Data in India today, we have found that more and more businesses are planning to advance in Big Data soon. As India's economy is growing at a considerable pace, it is very critical that India incorporate new technologies which might give it an edge over other countries, these big data technologies helps companies drive into insight with the given raw data. From literature, we have noticed that there is a crucial need for Big Data in the banking domain [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, economic conditions and on spending ways this allows the bank to analyse each of the groups and provide services as per the needs of each of the group.

Risk Management Fraud detection at an early stage is a large and important part of risk control, and BD helps in identifying the patterns in the risk thereby making it manageable to control

Client Profitability: BD provides up to date customer data this helps the banks to identify the customers who are willing to invest in the products thereby increasing the profit of the company.

Hence, it is evident from the above literature survey that there is a need for development for a big data analytic model to effectively collect the data and analyse the customer activities. The proposed model tries to do the above using various filters thereby helping the bank to gain crucial insight and increase its profitability

III.   PROPOSED SYSTEM

The Big Data provided by the bank is loaded into the Qlik Sense application and used to design various graphs. Filters are provided for the graphs to help the analysis and make the application more dynamic in nature.

This system has three modules. They are

i.   Data creation: Firstly, we must initialize a database storage area on our local disk. This is called as a database cluster. It is a collection of databases which is managed by a single instance on a database server which is running. After initialization, the cluster will contain a database named as postgres, which is a default database and the Big Data (consisting of approximately 10 million records) is created and stored in this database.

ii.   Data loading: Qlik Sense uses a data loading script managed in the data load editor. This is used to connect to and retrieve data from various sources of data. The fields and tables to load are specified in the script. It is also possible, using script statements and expressions, to manipulate the data structure. During the loading of data, Qlik Sense

identifies common fields from various tables (key fields) to associate it with the data. The resulting structure of data in the app can be monitored by using the data model viewer. Changes to the data structure are made by renaming the required fields to obtain different associations between the tables. After the data has been loaded into the Qlik Sense tool, it is stored inside the app.

iii. Building of Dashboards: After the data is successfully loaded into Qlik sense tool. Qvd files are created in the system. To load the data again, we have to edit the load script to point to the correct locations of the file. This script uses file locations in several places which are clearly marked for convenience. We also need to connect the DBF files to an ODBC database. The tables to be loaded from Qvd depends on the kind of dashboard we need. Different tables are loaded for different kinds of dashboards and necessary filters are applied. Later the dashboards are modified as the client or business user need it.

IV. RESULTS

The result of creating this project is a collection of graphs displayed across three dashboards. They are

i. Dashboard with respect to Geographical locations: This Dashboard consists of three graphs namely Revenue Breakdown by Entity, Profit Analysis by Country and Product, Revenue Breakdown by Business.
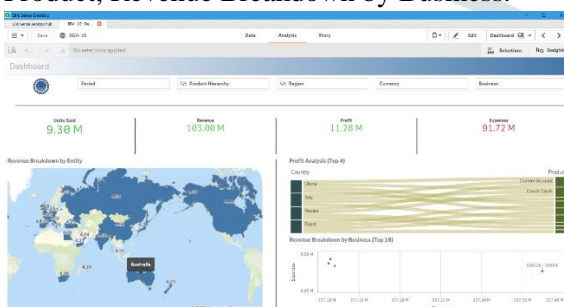
ii. Sales Analysis Chart: This Chart consists of three graphs namely Sales by Country, Sales by Period and Stage Analysis.
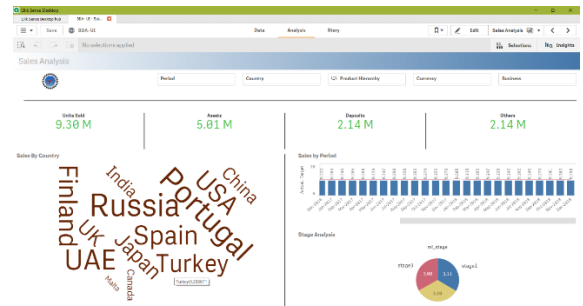
iii. Profit and Loss Chart: This Chart consists of two graphs namely Revenue breakup and Expense Tracking.
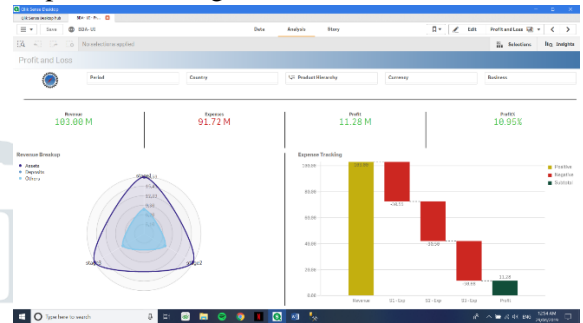
V. CONCLUSION

Big Data and analytics has been realized as one of the foremost modern technology which is being used in various sectors including banking, and this technology is proving to be very crucial for the banks to deliver better services and product to their customers. So the big data techniques should be implemented by the modern Indian banks to provide better services to the customer and also to increase the bank's profitability it's a win-win situation for both, and this, in turn, helps in the country's economic growth in order to achieve that the banks need to upgrade from their traditional methods to modern technology.

VI. ACKNOWLEDGMENT

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