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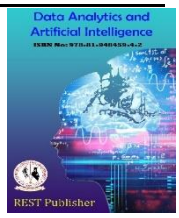


# Impact of Big Data Analytics on Banking Sector

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**Abstract:** Banking and finance institutes generate as well as have transaction of enormous amount of money every minute over the world. So, by its virtue of its very nature, this industry is data intensive. The data present in this sector is complex information and falls under the ambit of Big Data, which has already defined as "Set of information with large, diverse and complex which is growing at increasing rate". These data hold more potential for bank to have better understanding of customer base, product performance and industry trend in this competitive market sector. With the technological advancement in past decade, nearly half of adult populations have begun using digital banking. This exponentially growing numbers of tablets, mobiles and other electronic devices have made it easy for customer to perform different activities, communicates with different organizations, research products and services, purchasing new item, feedback and performing banking task. These activities and data from it can be used to create a customer profile which bank can analysis to monitor trend and foresee customer behavior and offer customize services. This paper discusses some of the existing application of Big Data in banking as well some future opportunities related to big data in banking sector and some underlying challenges which have to be tackled.

## 1. INTRODUCTION

With the rise of the internet, smart phones and other apps, digital data has escalated. The tremendous potential of using this knowledge, also known as Big Data, is recognized by private businesses and governments alike, to generate real value for consumers and increase productivity over time. Big data might make over businesses and economies, but data science is the real game changer. Big Data Analytics is the study of broad and varied data sets to uncover hidden patterns, consumer demands and trends, unknown associations, customer desires and other valuable knowledge that helps to achieve major marketing objectives. The astounding rise comes from both the number of data generation devices and the number of sensors in each device; about 11 billion devices

**Benefits of Big Data in Banking:** The banking sector is the engine that powers economies, nations, and organizations. It alsoproduces massive amounts of data every second. Every transaction leaves a trace and generates data that was previously thought to be static and only useful to auditors for the purposes of accounting and auditing. However, as Big Data technologies in other areas such as Healthcare began to show their true potential, we began to incorporate such "worthless" and "stale" data into those systems and began to truly see the potential of financial insights that could be used for a variety of purposes. As a result, Big Data in Banking has untapped potential, and we'll try to discover the implications and benefits of how it works, as well as the possibilities that could be explored. Banks use Big Data and BI technologies such as Hadoop and RDBMS in all of their processes, changing the face of banking for the better. Big Data has helped shape organizations and institutions all over the world, from digitizing all banking processes to converting developing economies from cash-heavy transactions to digital transactions.

**Characteristics of Big Data:** The characteristics of Big Data are 4 Vs, following are the Characteristics,

1. **Variety -** This refers to the various data types processed. Every day, banks must deal with massive amounts of data of various types. Banks have troves of customer data ranging from transaction details to credit scores and risk assessment reports.
2. **Volume-** This is the amount of storage space required for the data. JPMorgan Chase, China Construction Bank Corporation, and BNP Paribas, among others, generate terabytes of data every day.
3. **Velocity-** This is the rate at which new data is added to the database. With the volumes that today's banks deal with, handling 1000+ transactions are not a pipe dream.
4. **Value -** These three Vs are meaningless unless a company has the fourth one, Value. The value for banks corresponds to using big data analysis results in real time to make business decisions.

## 2. APPLICATION OF BIG DATA TO INDIAN BANKING SYSTEM

To tackle the problems faced by banks, a company named Aspires systems has created Propel Stream.

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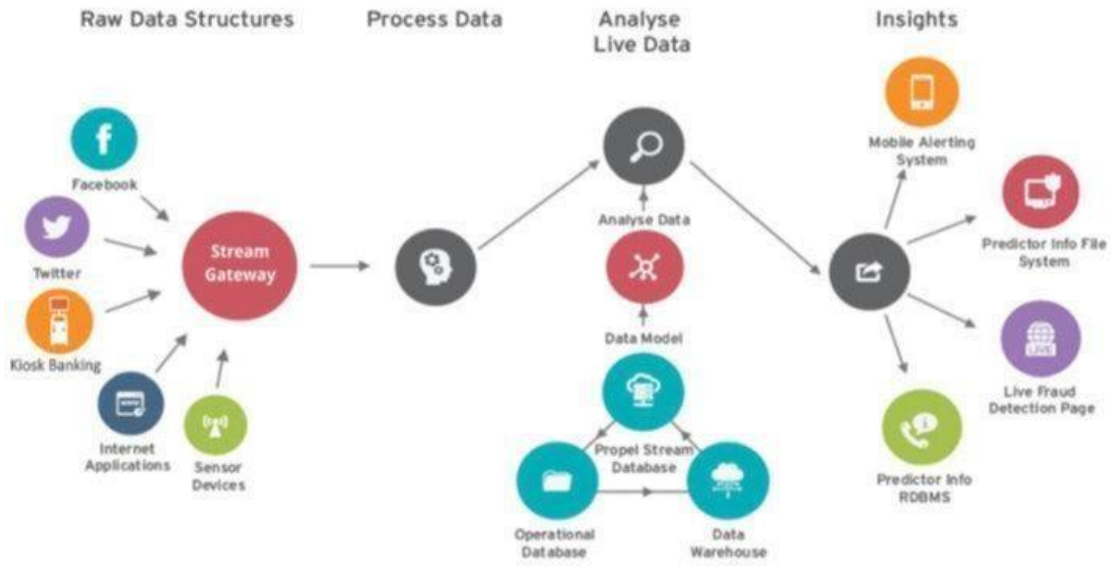



Propel stream, is a real-time streaming analytics solution built to create and capture value from disparate sources of data. It collects real-time data from all the available sources like router switches, banks, internet apps, and social channels like Facebook and Twitter. Predictive messages are then sent to receivers via channels like mobile, file systems, and fraud detection pages. It also helps to accumulate data and on the accumulated data it can give reliable market predictions like stock exchanges, inflation etc.

**Customers are given personalized banking solutions:** big data, when combined with effective tools and technologies, can provide banks with a better understanding of individual customers based on inputs received. This includes their investment habits, shopping habits, investment motivation, and personal or financial backgrounds. For example, they can predict and prevent churn by having a complete customer profile and data. Find the best way to solve any existing issues. Big data is used by the banking industry to get to know their customers. As a result, they create products, services, and other offerings based on existing customer profiles that are tailored to their specific needs.

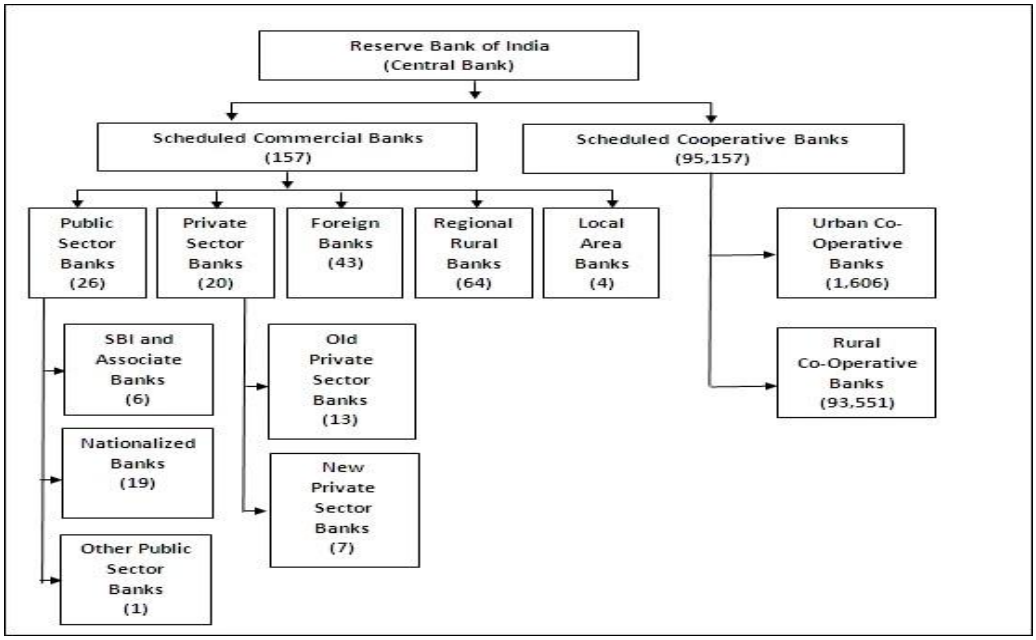
**Segmentation of Customers:** Customer segmentation allows banks to better target their clients with the most appropriate marketing campaigns. These campaigns are then tailored to meet their needs in a more meaningful way. Banks will gain valuable insights into user behavior by combining machine learning and artificial intelligence with big data. It also allows them to optimize their customer experience accordingly. Furthermore, banks will be able to categorize their customers based on various parameters, such as preferred credit card expenditures or even net worth, by being able to track and trace every customer transaction.

**Analysing Customer Feedback Effectively:** Through feedback, Big Data tools can provide banks with customer questions, comments, and concerns. This feedback assists them in responding in a timely manner. Customers will remain loyal to a company if they believe their banks value their feedback and communicate with them promptly.

**Detection and Prevention of Fraud:** One of the most difficult challenges facing the banking industry today is detecting fraud and preventing questionable transactions. Big Data in banking enables them to ensure that no unofficial transactions occur.

## 3. BANKING SECTOR IN INDIA

After independence the banking industry in India has also expanded extraordinarily. A series of financial mismanagement and scandals in the 1960s and 70s had forced the government to nationalize most banks. After 1991, however, following the footsteps of liberalization, globalization, and privatization, the private bank was reinvigorated the big way




According to information provided by Reserve Bank of India (RBI), there are currently 26 public-sector banks, 20 private-sector banks and 43 foreign banks, approved to conduct banking operations in India. Another two entities, IDFC (Infrastructure Development and Financing Corporation) and previously a micro-finance firm, Bandhan, have got banking licenses. There are 61 national rural banks and over 90,000 cooperative banks, as well. India's banking sector has a net worth of 81 trillion Rs ($1.31 trillion). According to research by KPMG and CII, India's banking industry is all set to become the fifth largest banking sector in the world by 2020 and the third largest by 2025.

## 4. FUTURE OF BIG DATA IN BANKING SECTOR

As you can see, there's so much use of how big data in banking is used. But, barely scratched the surface of all those attempts. Big data's full capacity also needs to be harnessed in banking. 62 per cent of banks believe that big data is crucial to their success, according to Global Transaction Banking's whitepaper. Yet, only 29 per cent of them report having sufficient business value from their results. If banks want to remain relevant and competitive, they need to rethink their operations and adopt data-driven approaches. Plus, big data will help you develop and expand your business in the banking sector.

## 5. CONCLUSIONS

The Age of Big Data is upon us. Organizations need to understand what Big Data is like and how to use it. The advantages and benefits are too great for companies to disregard. The combination of various data sets, such as company data, public data and social data, would provide even more information. There are more ways that banks and different monetary establishments have begun to capture client connected knowledge for sentiment analysis, ranging from social media websites to varied marketing research channels. The impact of Big Data on society will be big, but it remains to be seen how society will impact Big Data.

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