

Big Data Use Cases in Banking/Finance

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Big Data and new-age Fintech start-ups are revolutionising the Finance sector at a Global Level. If we talk about India, the combination of Big Data, predictive models relying upon it, and Aadhaar have given India's Fintech start-ups the ability to assess financial risk in quicker, precise and more reliable technique than the conventional credit rating system. Imagine never having to visit a bank physically ever again for availing services but all services being available digitally via Mobile phones. The picture receiving any kind of financial product merely at the touch of a button, the verification being carried out through your phone's fingerprint scanner. Algorithms will process your information and select the best financial product for you instantly, and funds will be digitally transferred to your account. This is the brave new world that India's new-age fintech companies are trying to create for Indian businesses and consumers using Big Data. According to a study carried out by Analytics India and AnalytixLabs, the Indian data analytics market is expected to double its size by 2020, with about 24 per cent being attributed to Bigdata.

Below are some important use cases of Bigdata in Banking/Finance,

1. Customer Churn Reduction

Bigdata analysis aids in customer churn reduction as there exists complex data over time having interactions with different customer behaviours which can be difficult for people to analyse. AI systems can analyse a variety of big data, including social media posts, relatively complex interactions between behaviours and compare it to individual history to determine the risk of customer churn. Analysis can identify the reasons why a customer is at risk and alarm financial institution to act in those areas for the individual customer and more globally E.g. It can be used to recommend the best offer that will most likely retain a valuable customer.

2. Fraud Detection

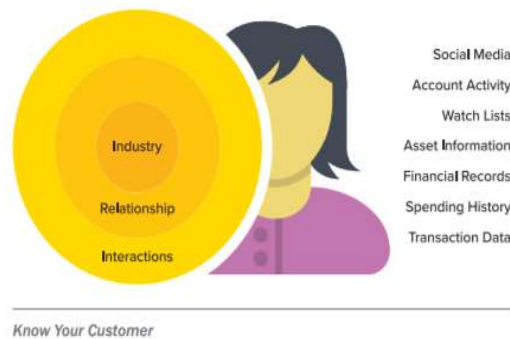
Fraudulent activities on credit cards have been increasing constantly for the past few years because of expanded e-commerce and online portals for shopping. Financial institutions now have to filter through much more data to identify fraud. Analysing traditional customer data is not enough as most customer interactions now occur through the Web, mobile apps and social media. To gain a competitive edge, financial services companies need to leverage big data to detect and prevent fraud. This is where Machine Learning (ML) helps industries and consumers to safeguard themselves from cyber frauds. ML Algorithms are capable of analysing data points to identify many frauds (regarding financial transactions) and spotting unusual patterns. Big Data is the fuel for these Machine Learning Algorithms. They can analyse and recognize the consumers' details like their location and purchase history to develop a behaviour model that is used to alert customers if anything is tracked outside the pattern.

AI is an ideal technology for finding anomalous patterns and identifying areas of risk, especially where there are a large number of items of different types that need to be reviewed and potentially correlated. Machine learning can be used to perform analysis of transactions and can look for indicators of suspicious behaviour including transactions with dubious jurisdictions, suspicious companies or parties. AI can also offer better insights into transactions through the analysis of both structured and unstructured data. Natural Language Processing (NLP) techniques allow AI systems to search through communications to find additional information including extracting metadata, identifying people or companies referenced, and categorizing the intent or

purpose of the communication. All of these can help pinpoint suspicious transactions and help investigators as they investigate transactions.

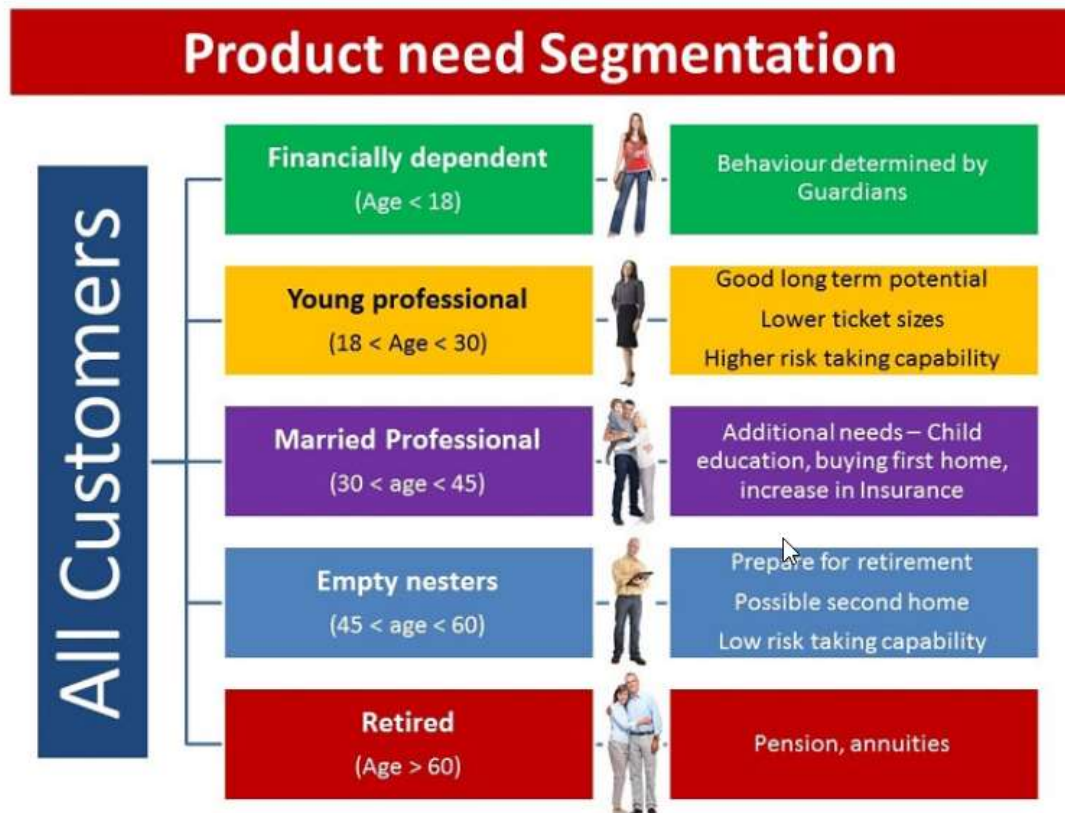
3. Build Strong Marketing Strategies

Financial Institutions have been under pressure to change from product-centric to customer-centric businesses. The wealth of information that is gathered and analysed for KYC assessments allows businesses to build a comprehensive, 360° view of their customers, unlocking nearly limitless opportunities for creating more effective, tailored, and personalized marketing and sales tactics. Having an in-depth understanding of a customer's preferences, patterns, likes and dislikes, purchase and spending history, and other behaviours can help financial services companies identify and retain their most profitable clients by tailoring campaigns and upsell strategies to their specific needs. A comprehensive KYC approach can help deliver superior customer experience at a point of service, improve campaign effectiveness and help banks anticipate and prevent churn by spotting unusual activities and offering targeted programs to keep customers happy.



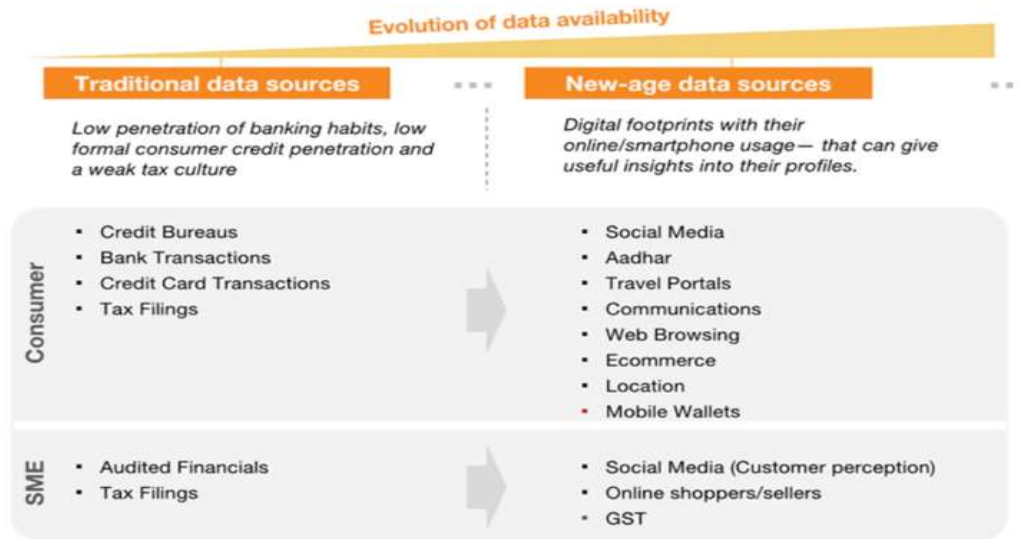
Spending history, account activity, account activation & deactivation, transaction data, current and past asset information are among the data points that can provide a holistic view of a person's, or business entity's profile. But when evaluating a prospective client, it's also important to look at their relationships with other individuals and institutions. Sources such as social media, online publications, and financial records can help identify links between your prospective business partner and other entities and people.

Thus, Big data enables them to group customers into distinct segments, which are defined by these data sources. Promotions and marketing campaigns are then targeted to customers according to their segments.



4. Alternative lending

Alternative lending is a broad term used to describe the wide range of loan options available to consumers and business owners outside of a traditional bank loan. Credit assessment and evaluation is the pre-cursor to any form of lending – big or small. But how do we do this without an accurate credit-scoring model? This is where technologies such as big data are being increasingly leveraged to develop credit scores and provide quick loan disbursement to the end-users. Instead of indulging in laborious paperwork, customers can easily finance their purchases through their mobile-money-wallets. The process is as simple as doing online shopping with an automated 'refill option' if your wallet falls short of cash. A variety of factors such as current income, employment opportunity, loyalty to a telco, spending patterns (P2P transfers, utility payments, etc.), mobility features (travel, events attended, etc.), repayment history (no. of defaults, previous loans, etc.), social and professional factors, and financial consistency are assessed on a robust platform to assign a credit limit. Any amount equivalent or less than the assigned credit limit can be availed without submitting any collaterals and is just a matter of a few seconds. Anyone thinks, and phew he has it. Taking a loan was never a click away!



Mobile-lending is a promising aspect of modern mobile financial service that helps address the financial needs of a large part of the population that is invariably left outside the purview of the formal banking system. With a global population of 3.7 billion having access to mobile and internet, mobile fintech companies can successfully provide a platform to the unbanked to engage in savings, transfers, borrowings and re-payments. AI can also adapt to new problems, like identifying credit card churners, the consumer will have a high credit score but are not likely to be profitable for the card issuer.

Very briefly, existing alternative lenders have evolved into the following broad segments as of now, Personal Loans, Business Loans, Payday Loans, Student Loans, P2P Lending, Purchase Lending

- **Personal Loans:** Given for short time duration and one- time purchases.
- **Business Loans:** Given to online sellers and small merchants.

Chqbook.com – Gurgaon Based Fintech

Chqbook.com is building India's first Marketplace bank for small business owners (across SMEs, HoReCa and Kiranas). They are helping these small business owners through their five pillars of Lending, Credit Cards, Insurance, Rewards and Accounts. The platform offers over 60 products with zero-fee and negotiated rates and has served over 200,000 customers across 20 cities. According to the start-up, it uses alternate data and works with credit bureaus, partners, and financial institutions to provide financial services to over 12,000 business owners per month and processes more than 40,000 customer applications per month.

Loanzen – Bengaluru Based Fintech

Loanzen provides loans to purchasers of used commercial vehicles, including operators of small CV fleets, and first-time buyers. These purchasers have limited financing options due to inadequate credit history and lack of documented income. It uses proprietary underwriting processes based on alternate data sources to meet the needs of this customer segment.

SlicePay – Bengaluru Based Fintech

SlicePay offers payment cards tailored to the needs of students and young professionals between the ages of 18 and 29 years. It has 200,000 customers as of now and is operational in over 16 cities.

- **Payday Loans:** Small sums advanced to professionals and to be recovered when they receive their salary.

Creditt - Ahmedabad-based fintech

Creditt's platform disburses 1,500 payday loans every month. Creditt, which claims to have disbursed over 4,000 loans in a year amounting to Rs 7.5 crore, adds money in the user's account within minutes after on-boarding

- **Student Loans:** For higher education and without collateral.
- **P2P Lending:** For individuals to borrow or lend money without an intermediary financial institution.

Peer to peer financing platforms use machine learning technologies and solutions that save individuals and companies' money & time and help them access a line of credit. This allows P2P lending platforms to provide borrowers with a quick, easy, and affordable service that banks fail to match.

- **Purchase Lending:** For purchasing of goods or services and specifically targets the student community.

5. Personalized Banking

Financial Institutions are now moving from the label of product-centric to customer-centric and so targeting individual customer is the ongoing trend. This is one step beyond segment-based marketing, which targets customers based on the understanding of their buying habits. While it's supported by big data analysis of customer purchase history, complaints, call logs; financial services firms can also incorporate unstructured data from their social media profiles to create a complete picture of the customers' needs & problems through customer sentiment analysis and proactively address their complaints.

Consumer banking generates petabytes of data every year and consumers desire an experience specifically tailored to their needs. Forward-looking banks strive to serve their clients when and where they need using AI-powered Chatbots for daily banking needs. Knowing their customers from a 360-degree perspective allows banks to anticipate what financial products they might need and proactively offer customized products to them.

6. Wealth Management

There are many apps in the Indian/Global Market that offer personalized financial advice to help individuals achieve their financial goals and manage their investments. These apps are governed by AI systems, which process Big Data to provide recommendations.

Kuvera - Bengaluru based FinTech

Kuvera is India's first completely free Direct-Plan, Mutual Fund investment platform. It has an AI-powered system that does Goal Planning & Funds Recommendation.

Kristal.AI - Singapore based FinTech

Kristal.AI is first-ever Robo-advisory to bring personalized, AI-powered international investments to India in a seamless manner. It's an AI-enabled Digital Asset Management Platform giving investors access to curated portfolios from the world's top Portfolio Managers. Its proprietary algorithm helps consumers choose the best investment strategies to meet their financial goals.

7. Festive/Periodic Offers

Banks providing offers on selective days in a selective time slot for travel, food, grocery shopping and offers during festive seasons. The offer period is not seldom decided but there is Big Data analysis to predict the offer window to get maximum business.

8. Risk Mitigation

Risk mitigation is one of the most important factors in the finance industry. AI systems analyse past risk cases and make predictions on potential future risks. They essentially tap elements of traditional data & Big Data and interlinks them with a layer of artificial intelligence to unlock hidden patterns. AI in the finance industry is a powerful tool for mitigating various risks by analysing real-time activities in the businesses, identify stressed accounts early on and improve recovery and profitability.

Bahwan CyberTek (BCT) – Chennai Based Global Technology Company

Bahwan CyberTek (BCT) is a global provider of digital transformation solutions in the areas of Predictive Analytics, Digital Experience and Digital Supply Chain Management. With strong capabilities in Digital Technologies, BCT has deep technical and domain expertise, delivering solutions to various domains including Banking.

They drive digital transformation for banks and financial institutions through their risk management product suite rt360. The product suite enables financial institutions to optimise the management of their risk and regulatory compliance needs, empowering them to focus on credit growth and profitability. rt360 offers a comprehensive suite of risk management & regulatory compliance solutions for the banking industry, spanning across credit risk, liquidity risk, model risk, and operational risk. E.g. Their products include an early warning system to identify incipient stress in large loan portfolios.

A Case Study at Yabx - A FinTech Undertaking

Yabx is a Gurgoan based B2B start-up, founded by Rajat Dayal. It is part of the \$21 billion Mahindra Group operating in the financial services space having successful engagements in multiple countries. It was incubated in December 2017 within Comviva, a company which provides technology solution and services involving mobile operators and financial entities. i.e. Banks, NBFC, Digital Wallet Providers.

Globally it is witnessed that, mere 5 to 15 per cent of the population, both consumers and small & medium business in any developing country get access to bank credit, but the mobile phone penetration in these countries is well over 85 per cent. The reason for people not getting access to credit is because banks don't have information to whom they could lend. They just do not have the right data about consumers. Yabx could meaningfully integrate between the telecom operators, payment service providers, and banks to reach out to these consumers who were still underserved in terms of credit access. The start-up aims to simplify financial access to the unbanked in developing markets such as Africa, Asia, and Latin America using mobile phones.

Behavioural models

The key focus for telecom partners was finding additional revenue sources through monetisation route of their existing data while ensuring complete data privacy and security. Yabx also did not restrict itself to just telecom data as it sourced additional data from sources like payment gateways, point of sale (PoS) and government data, etc. Given this pile of information, they transformed this alternate data into financial identity using machine learning to predict, ability & willingness to consume financial products; They went about creating the behavioural models, which it could provide to the banks to identify good quality borrowers. This also opened a new segment of customers for the banks as they were reaching out to those areas of the population which normally would not traditionally be their key target segment. Here, the one advantage point which the start-up had was access to data, especially from the telecom operators and wallet providers, given the heritage and business of parent company – Comviva.

Products

Yabx leveraged its deep domain capabilities in areas such as big data and machine learning to create models, which banks can use to base their credit decisions. Currently, it has created models in four areas:

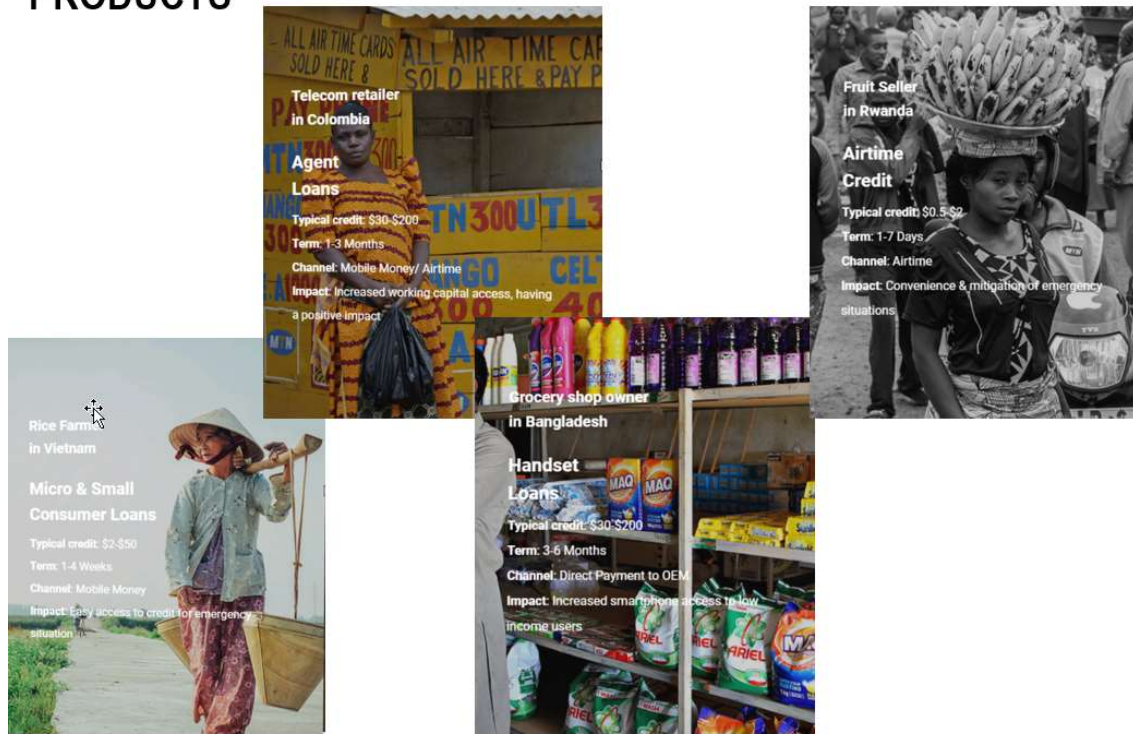
Micro and small consumer loans - Reaching out to customers who do not have access to traditional finance

Agent loans - Quick and unsecured working capital loans for mobile money agents

Handset loans - Loans for handset upgrade from feature phones to a smartphone as well as to facilitate new smartphone purchase

Airtime credit - Facilitating the need of an all-time recharge availability coupled with the convenience

PRODUCTS



Business model

The business model of Yabx is where it gets paid by the banks for the usage of its analytical model and shares part of this revenue with the telecom operators and mobile Financial Service Providers. The differentiating factor of Yabx is its ability to access & analyse data to create different kinds of customized behavioural model that enable financial access for different types of credit decisions.

Today, Yabx is live at two places in Africa – Malawi and Rwanda. It is now planning to go live soon in four countries viz. Tanzania & Uganda in Africa, Bangladesh in Asia and Colombia in Latin America. Yabx has still not launched its operations in India but is planning to go live in the next 12-15 months (Mid 2021).

Conclusion

Big Data has still a lot more to contribute to the finance industry. However, whatever it has done until now is no less than a boon for every associated person and organization. Big Data has certainly reshaped and still in the process of reshaping the landscape of business in this sector. The future will lead to more generation of big data through transactions in secured accounts with the expansion of adopting blockchains and cryptocurrencies.

In the following years, Big Data will help financial services companies generate more revenue, maximize resources, and mitigate risk in trading, lending, investment, and banking. As of late 2018, just one-third of organizations have taken the move to implement using big data into their business processes. Many still misjudge it, to be on the safer side, being cautious about time and outlay such an organization will demand, and hurdles in implementing systems using Big Data in financial services. However, they should be alert for the future about not adopting big data practices now, which may cost them far more in the long run.

According to the World Economic Forum, consumer spending in India is expected to grow from \$1.5 trillion (present) to nearly \$6 trillion by 2030. This shows the massive opportunity for fintech start-ups to harness the increase in Big Data.

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