Datameer®

3 Top Big Data Use Cases in Financial Services

How Financial Services Companies are Gaining Momentum in Big Data Analytics and Getting Results

Helping Financial Services Companies with Big Data

Datameer has been working with some of the most progressive companies in financial services to rapidly deploy big data analytics that drive customer acquisition, increase customer loyalty, predict and prevent fraud and deliver more targeted advertisement.

The top three credit card companies in the world, top global banks, wealth management and insurance companies are now understanding their customer behavior by combining both structured data such as CRM, transaction and point of sales, with unstructured data such as Web logs, social media and mobile interaction to get new insights that drive customer acquisition.

Get a Competitive Advantage with Big Data

Financial services companies generate and compile exabytes of data a year, including structured data such as customer demographics and transaction history and also unstructured data such as customer behavior on websites and social media.

Starting with the financial crisis in 2009, financial institutions have increased their focus on customer risk management. Around the globe, financial organizations continue to lay down rules for credit risk and liquidity ratio levels, including regulatory acts such as AML, Basel III and FATCA that increase the amount of customer data available for analysis.

In addition, financial institutions now have to filter through much more data to identify fraud. Analyzing 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 better comply with regulations, detect and prevent fraud, determine customer behavior, increase sales, develop data-driven products and much more.

This e-book outlines the three top financial services use cases of big data as well as provides a number of real-life case studies. We hope this generates some ideas on how you can leverage big data analytics in your organization.

[1] http://www.researchandmarkets.com/research/xz3zpz/global_big_data
[2] http://www.information-management.com/news/banks-urged-to-focus-on-it-rather-than-cost-cuts-10025282-1.html

Understanding Your Customer Interactions

As a CMO, digital marketing, or customer loyalty executive responsible for optimizing customer acquisition and loyalty campaigns, you need greater visibility into the customer buying journey. Why? Because deeper, data-driven customer insights are critical to tackling challenges like improving customer conversion rates, personalizing campaigns to increase revenue, predicting and avoiding customer churn, and lowering customer acquisition costs.

But consumers today interact with companies through lots of interaction points – mobile, social media, stores, e-commerce sites, and more – which dramatically increases the complexity and variety of data types you have to aggregate and analyze. Think Web logs, transaction and mobile data. Advertising social media and marketing automation data. Product usage and contact center interactions. CRM and mainframe data. And even publicly available demographic data. When all of this data is aggregated and analyzed together, it can yield insights you never had before – for example, who are your high-value customers, what motivates them to buy more, how they behave, and how and when to best reach them. Armed with these insights, you can improve customer acquisition and drive customer loyalty.

Big Data Analytics at Work

Big data analytics is the key to unlocking the insights from your customer behavior data – structured and unstructured – because you can combine, integrate and analyze all of your data at once to generate the insights needed to drive customer acquisition and loyalty. For example, you can use insights about the customer acquisition journey to design campaigns that improve conversion rates. Or you can identify points of failure along the customer acquisition path – or the behavior of customers at risk of churn to proactively intervene and prevent losses. And you can better understand high-value customer behavior beyond profile segmentation (for example, what other companies they shop from, so you can make your advertisements even more targeted).

| Increase Customer Acquisition | Increase Revenue per Customer | Decrease Customer Acquisition Cost | Reduce Customer Churn | Product Enhancement |

Fraud and Compliance

If you are responsible for security, fraud prevention, or compliance, then data is your best friend – if you can use it to identify and address issues before they become problems. The fact is, security landscapes and compliance requirements are constantly evolving, as are the methods that the bad guys are using to defraud your business and customers.

Data-driven insights can help you uncover what's hidden and suspicious – and in time to mitigate risks. For example, analyzing data can help you reduce the operational costs of fraud investigation, anticipate and prevent fraud, streamline regulatory reporting and compliance (for instance, for HIPPA), identify and stop rogue traders, and protect your brand. But this requires aggregating and analyzing data from a myriad of sources and types and analyzing it all at once – no small task. Think financial transaction data, geo-location data from mobile devices, merchant data, and authorization and submission data. Throw in data from lots of social media channels and your mainframe data, and you have a significant challenge on your hands. However, with the right tools, this melting pot of data can yield insights and answers you never had before – insights you can use to dramatically improve security, fraud prevention, and compliance.

Big Data Analytics at Work

Big data analytics enables you to combine, integrate and analyze all of your data at once – regardless of source, type, size, or format – to generate the insights and metrics needed to address fraud and compliance-related challenges. For example, you can perform time series analysis, data profiling and accuracy calculations, data standardization, root cause analysis, breach detection, and fraud scoring. You can also run identity verifications, risk profiles, and data visualizations and perform master data management.

Credit Card
Fraud Detection

Criminal Behavior

Regulatory
Compliance

Cyber Attack
Prevention

EDW Optimization

Enterprise data warehouses (EDW) are critical for enabling operational reports for businesses – but as the size and complexity of the data to be analyzed increases, you'll eventually hit the limits of traditional data warehouses. You'll know it when your processing times take too long to meet business needs, your costs get out of control, or you struggle to process and analyze new data types. For both IT executives and key stakeholders responsible for analytics, business intelligence and enterprise data, this is a serious problem. Today's business decision makers simply can't afford delays in insights anymore.

The solution is to offload the most challenging data management and analytics activities to new technologies and management approaches designed to handle them. For example, do you need to cut the costs of data preparation and cleansing? Reduce time to insight by offloading the most time-consuming analytical tasks? Support a variety of new data types, especially unstructured data? Or better manage rapidly growing log, sensor and other unstructured data?

Traditional EDWs were never designed to solve these types of challenges. First, they make it prohibitively expensive to manage the ever-increasing volumes of transaction and interaction, mobile data, website click stream data, ad click through, log data, sensor data, and unstructured machine data. At second, they're slow to produce analytics from unstructured data because they don't support it. This forces technicians to manually give this data structure before analyzing it.

Big Data Analytics at Work

The good news is, big data analytics solutions that run on Hadoop can solve these challenges. Big data analytics solutions running on Hadoop make it easy to overcome these challenges because they allow you to cost effectively scale to any volume of data and store and analyze any and all data types together – both structured and unstructured. You can also use them to extract structured data from your EDW into Hadoop for cheaper storage and then send back into EDW for analytics. All data can be analyzed as is, eliminating costly data preparation activities. At the same time, big data analytics is so powerful because it enables you to combine, integrate and quickly analyze all of your data at once – regardless of source, type, size, or format – to generate the insights your business needs. In addition, you can parse, clean, profile, match, enrich, aggregate, and normalize data, as well as manage ETL workloads and generate master data.

Offload Expensive Analytics	Offload Expensive Data Preparation to Lower Cost	Data Discovery	Deal with Various Data Types

Datameer Delivers Faster Insights from Big Data

Datameer provides a one-stop-solution for getting all of your Web, advertising, mobile, social media, transaction, marketing automation, and CRM data into Hadoop; enriching it with third-party data; analyzing your data; and visualizing results using wizard-led data integration, point-and-click analytics functions, and drag-and-drop visualizations. Our broad set of 60+ data connectors and analytic functions make it easy to:

- Rapidly combine and enrich existing data sets with third-party, customer, and other data
- Perform ad-hoc analytics to test what-if scenarios
- Better understand your customer interactions and identify the most effective campaigns
- Identify the behaviors of customers at risk of churn

As a result, you can answer questions like:

- What's really happening across the customer journey?
- Which campaign combinations accelerate revenue?
- Which offers drive customer loyalty?
- What credit card behavior signals potential fraud?
- How can we assess customer risk before extending credit?
- How can create more targeted campaigns?

The following case studies outline how some of the most progressive financial services companies are using big data for a competitive advantage.

Predict and Prevent Customer Churn

Company Profile:
A leading financial services company offering retirement planning, IRAs, mutual funds, life insurance, and more.

The Need for Insight into Customer Behavior

As part of a strategic initiative to reduce the amount of funds being transferred to competitors, this financial services company wanted to understand the client behaviors that might signal movement of funds. With a growing number of clients retiring, they realized that it was important to provide better wealth management services to retain them. They also wanted to identify and track specific behaviors so they could focus on the people who might consider moving their money. This is important because historically, 50% of the time, they can retain a customer if they know the customer is considering moving their pension. They leveraged Datameer to gain insight on what customer behavior signals that a customer is likely to transfer their investment.

Analyzing Customer Activity Leading Up to a Withdrawal

Using Datameer, the company first integrated data of customer activities that might indicate that the client was considering moving their funds elsewhere. Examples of such activities included: the client had recently called in for information with an outside financial consultant on the line; a change in address, workplace, or power of attorney; or the client had recently been browsing on the company site for forms. They pulled multiple data sources together to build out activity paths for each client. For example, they tracked clients' specific activities and whether these activities ultimately led to a transfer or withdrawal. By correlating this data, they were able to determine the statistical relevance of each activity, or combination of activities that predicted customer churn.

Result:

By identifying patterns of customers at risk of churn and proactively reaching out to offer their wealth management products, the company has reduced customer churn by 50%.

Analyzing Effectiveness of a New Sales Tool with Behavior Analytics

Company Profile:

A major provider of worldwide investment management services.

Measuring the Impact of a New iPad Application

In the United States, the asset management industry oversees the allocation of approximately $53 trillion in financial assets3. This company wanted to increase sales to get a bigger piece of this large market. They also needed a way to measure the effectiveness of different sales tools to accomplish this goal. The product management team created an iPad application that explained the various fund options and each fund's historical performance. The sales reps used the iPad application during meetings with financial advisers (wholesalers) to help describe the fund details. Product management wanted to measure the value of the new iPad application by analyzing the impact of its use on new trades (sales).

Analyzing Behavior

Using Datameer, the team integrated structured and unstructured data from multiple internal and external data sources. This included data from the CRM system logs, iPad application JSON logs, web activity, and the sales database. The CRM system logs recorded the actual date and time of the meeting, along with details of what products were discussed. The JSON logs showed whether the application was in use at the specific time of a meeting between a sales rep and a financial adviser. The JSON logs also showed the actual fund details that were viewed on the iPad application during the meeting. Weblogs showed if the sales rep browsed through the company website during the meeting. The sales database showed whether a specific meeting resulted in the client performing a trade within two weeks. The sales database also showed if the trade was for the same funds that were browsed during the meeting.

These data sets were integrated and analyzed to show the percentage of the overall meetings where the iPad application was used, and which meetings where the iPad application was used resulted in trades facilitated by specific financial advisers within two weeks. After the initial analysis, the company conducted a further analysis to determine whether the most successful sales reps used the iPad application more consistently than others.

Result:

The analysis through Datameer showed that using the iPad application resulted in a significant increase in sales within two weeks of meetings. It also showed many of the most successful sales reps used the application.
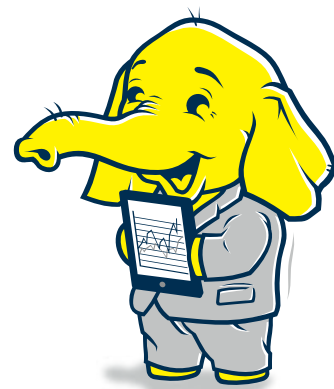
3 http://www.treasury.gov/initiatives/ofr/research/Documents/OFR_AMFS_FINAL.pdf

Analyze 7x More Customer Attributes 96% Faster

Company Profile:

A major worldwide bank, serving individual consumers, businesses of all sizes, governments, and other organizations

Process Billions of Data Points

Banks need to be able to quickly identify potentially fraudulent credit card transactions. This requires the ability to swiftly prepare data regarding these transactions and historical spending patterns. This leading bank has billions of data points to process. Their previous analytic environment had limits in computational power and in the ability to handle large volumes of data. The company wanted to increase the speed, agility and capacity to build, refine, and calibrate analytic models with three specific goals: eliminate sampling bias by building models with more data; test and iterate models faster and increase overall performance as compared to existing models while improving modeler efficiency and productivity.

Ultimately, the bank wanted to accelerate customer spend pattern signature detection, a computationally expensive analytic process. The goal was to analyze historical transactions to create signature vectors for different entities (customers, clients, industries, branches, economies, etc.) that capture the norms observed in prior behavior. In addition, they wanted to identify changes in behavior by classifying current transactions and comparing them to the relevant signature vector.

Analyzing Millions of Credit Card Transactions

The company built a query as a Datameer workbook for millions of credit card accounts, encompassing almost three billion transactions; 5 billion customer attributes; 50 spending categories; and 55 attributes per category.

Result:

Using Datameer, the company now analyzes 5 billion customer attributes in 51 minutes. In comparison, the company using their existing EDW solution, could only analyze 700 million customer attributes in 36 hours.

The Datameer solution provided a significant improvement in performance, reducing processing time by 96 percent while processing 7 times the number of customer attributes.
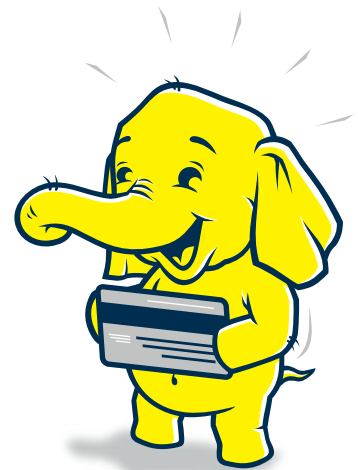
Reducing Customer Acquisition Costs with Targeted Promotions

Company Profile:

A leading multinational financial services provider based in the United States

### The High Cost of Acquiring New Customers

A McKinsey Global Institute Report shows that marketing and sales consume about 15 percent of costs for bank and insurance companies. Institutions spend hundreds of dollars to acquire each new customer. Credit card issuers spend billions of dollars annually on direct mail and mass-market advertising to get new accounts.4 This company realized that it needed to find a way to target customers and promote to them more effectively to reduce customer acquisition costs.

Using Insight for More Targeted Promotions

This company used Datameer to correlate customer purchase history, customer profile data, and customer behavior on public social media sites that indicated areas of interest (for example "liking" something on Facebook). Using the insight gained, the company could offer special promotions to an individual based on their interests. For example, if a person made a number of transactions at Whole Foods and liked the Food Network, the company could send a credit card with a special promotion for Whole Foods or the Food Network.

Result:

Using the insight provided through the Datameer analysis, the company created special targeted promotions, reducing the cost of new customer acquisitions by 30%.
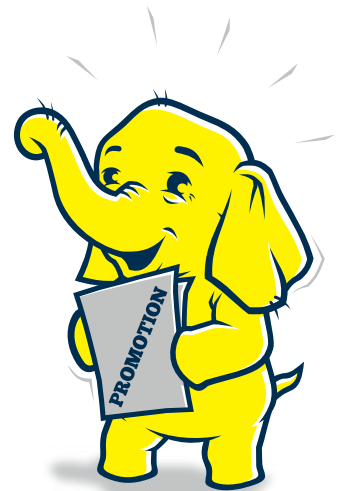
4 The social economy: Unlocking value and productivity through social technologies, July 2012

Ensuring Compliance with Basel III through Analysis of Trillions of Records

Company Profile:

A leading retail bank

The Importance of Data Accuracy and Quality

Basel III has introduced a number of challenges to banks. An Accenture report states, "The technical challenges of Basel III implementation includes data availability, data completeness, data quality and data consistency to calculate the new ratios."[5]

This bank integrated data from multiple sources for over 300 attributes. The data sources included sub-prime loans data, acquired wealth management data, and data from legacy retail banking systems. To comply with Basel III, the bank needs to ensure quality of the data, through a scorecarding process. The scorecarding process includes subjecting the data to hundreds of data quality checks. The results of those checks are trended over time to ensure that the tolerances for data corruption and data domains aren't changing adversely. In addition, they want to make sure that the risk profiles being reported to investors and regulatory agencies are prudent and in compliance with regulatory requirements.

Prior to Datameer, the bank used a SAS application to analyze data quality. They also were using Teradata and a mainframe solution. The process was time consuming and complex.

Quick Analysis of Trillions of Records

Using Datameer, the Data Quality Initiative team analyzes trillions of records that result in approximately 1 terabyte of reports per month. The team puts the results of the analysis in a data quality dashboard that the company uses to ensure accuracy of regulatory compliance reporting. In addition, using Datameer, they are able to reduce the time it takes to determine the impact of the data on risk metric calculations and accelerate time to market of their risk analyses.

Result:

With Datameer, the bank has dramatically reduced the time to analyze hundreds of attributes and terabytes of data.
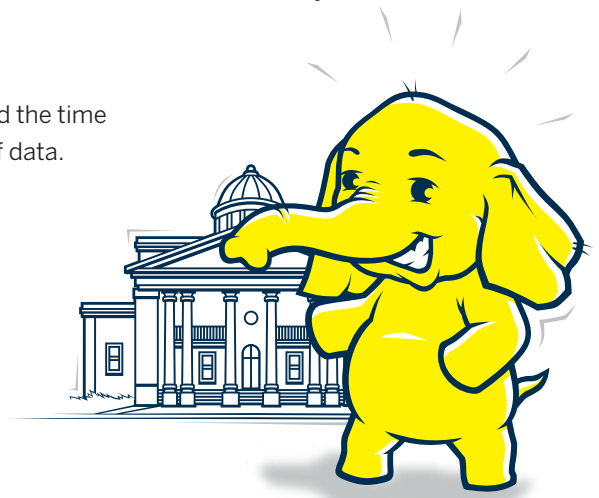
[5] http://www.accenture.com/SiteCollectionDocuments/PDF/Accenture_Basel_III_and_its_ Consequences.pdf

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