

# Grabbing Value from Big Data: Mining for Diamonds in Financial Services

**How financial services companies can harness the innovative power of big data**



People matter, results count.

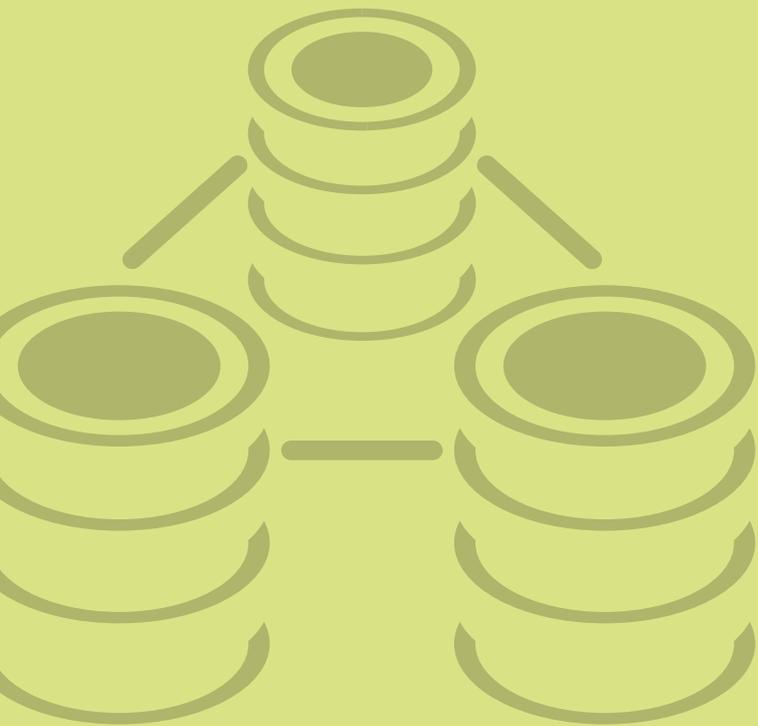


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Big data is not just a technology issue nor is it only about data. Big data is about enabling business users to make decisions that create value. It is important to define what the technology toolset must address to enable FS businesses to establish organizational trust and harness the innovation possibilities of big data. But companies tackling big data should not limit their focus to the technology solution. Their goal should be to help business leaders (CMOs, CFOs and others) make better sense of the real data they have, get to it quickly and make valuable decisions.

What do financial services (FS) companies need to know to derive the right business opportunities from big data? This paper focuses on helping FS companies maximize the value they generate from big data from the business perspective. To better understand the technology component of big data value generation, see [Grabbing Value from Big Data: The New Game Changer for Financial Services](#).



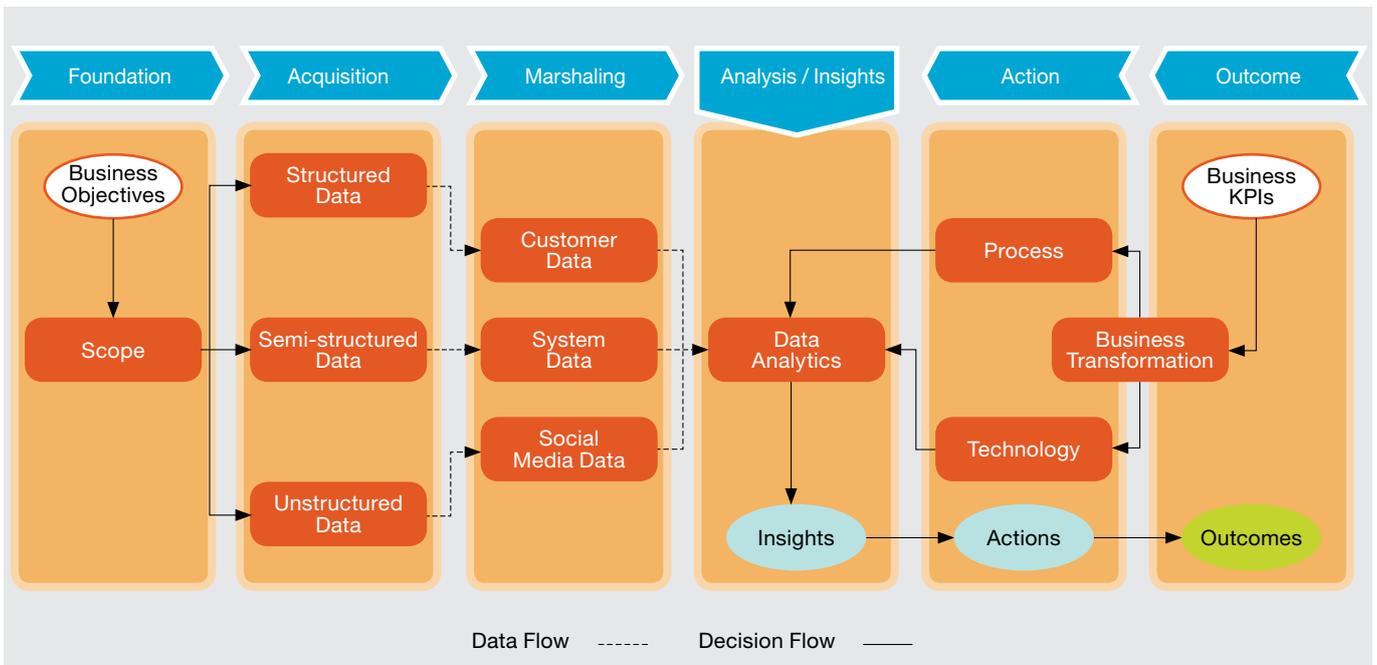
# Matching Business Objectives and Data Analytics

The journey toward being able to use data to gain insights about your business is a challenging one, involving six distinct steps: Setting business objectives, acquiring the data, cleansing it, analyzing it, gaining actionable insights, and achieving successful outcomes. At each stage, firms are faced with pitfalls that arise. Improperly stored, improperly cleansed, or non-indexed data may obstruct the task of data acquisition. Similarly, improper categorization of data, not gathering data at the desired frequency and not being able to separate the good data from the bad data can make the task of marshaling data effectively non-achievable. Furthermore, the insights generated might be rendered non actionable if they are not in sync with business objectives.

In most cases the pitfalls that occur in the big data journey are because of a lack of congruence between the data analytics approach and the business objectives set early in the journey. First and foremost, it is critical that financial services firms follow a business objective-led approach. This means that the types of problems the bank or insurer tackles should be based on the business outcomes it most wants to achieve. Furthermore, when considering possible business outcomes, financial services firms should be unconstrained in their thinking about what technology can support. As big data technology can process massive volumes of data in near real-time, opportunities previously considered unattainable may now be possible.

ICICI Bank in India focused a big data effort on operational efficiency by working to derive actionable insights to improve debt collection. India's ICICI Bank wanted to improve its rates of debt collection without alienating customers. It also wanted to bring efficiencies to a process that traditionally had been carried out manually by agents in the field. By taking advantage of non-intrusive channels, such as e-mail, phone calls and letters, the bank hoped to improve collections from early delinquents while still maintaining strong relationships with them. The challenge was to match each case to the most appropriate collection channel, based on the level of delinquency.

Figure 1. Business-Oriented Approach to Leverage Customer Data



The bank adopted an analytics system that captures the details of each delinquent case and assigns it to the appropriate channel or agent. The model factors in a wide range of parameters, including exposure, risk behavior, customer profile and even the efficiency of the collector, to identify the best method of collection. The new system has helped to substantially reduce credit losses and improve productivity. In the area of auto loans, for example, the bank increased debt collections by 50 percent. In some areas, it has reduced its manpower needs by 80 percent. And turnaround time on collections has been condensed from five-to-six days, to a matter of hours.

A leading U.S. retail bank focused its big data effort on improving the customer experience. This bank collects massive amounts of data on customer behavior and channel interactions, but kept it stored in different data warehouses. The bank wanted to bring all the data together to analyze it and create a more holistic picture of customers. With the in-depth customer data it hoped to develop more targeted product offers as well as more appealing online content. The ultimate goal was to improve the overall customer experience.

The bank installed an analytics system that integrates data from online and offline channels, resulting in a more global understanding of customers and how they interact through all the bank's touch points. This integrated data feeds into the bank's customer relationship management platform, supplying the call center with more relevant leads. It also informs the bank's decisions on how to design its web site to optimize customer engagement.

Through the detailed insights it offers into customer behaviors and preferences, the analytics system is helping the bank deepen customer relationships and create more personalized experiences. Specifically, the bank has increased conversions from inbound and outbound calls by 100 percent. It also has executed three major website redesigns in 18 months, using data-driven insights to optimize the content and increase customer engagement.

# Diamonds in the Rough

With business objectives in mind, there are a few big data “diamond” initiatives financial services firms should consider—ones that, in most banks and insurance companies are likely to drive specific, positive business outcomes and are “real” and operational today.

## Sentiment analysis

Sentiment analysis can be used to determine insights into stakeholder (customers, employees, regulators etc.) sentiment from massive, complex unstructured data. All types of electronic communication data from emails to documents can be analyzed to determine sentiment trends over a period of time, correlate sentiment time series with any other time series of interest and generate actionable messages for a given user or entity (product, geography).

Business applications include such things as a ‘Voice-of-Customer’ platform based on data available in call records, emails, blogs and social media data or to improve predictive models for risk, fraud, or cross-selling by combining Sentiment Analytics. Customer sentiment can also be used in product development to accelerate speed to market and employee sentiment can be used to analyze data such as employee satisfaction surveys for staff retention insights and other HR objectives.

## Figure 2. Key FS Applications for Sentiment Analysis

- A routine review of corporate system emails might reveal the sentiments of employees regarding individual projects or the institution at large
- Analysis of unstructured comments on the employment satisfaction survey can result in valuable insights for staff retention, recruitment and other HR objectives
- Words contained in financial news publications, shareholder reports, etc., provide textual context and clarification when combined with traditional transactional data to improve Risk Assessments and Mitigation



- A bank can use sentiment analysis to better understand the Voice of Customer based on available data residing in forums, blogs and other social media
- By analysing unstructured customer sentiment data, banks can better determine where to invest funds targeted at the acquisition and/or retentions of customer assets
- A combined predictive analysis, speech analytics and social media analytics can be used to detect and prevent fraud. For example, in an insurance setting, analysis of a claimant’s speech and social media communications can be used to generate a risk score for the claimant, which can then be used to detect fraud before issuing a policy

Sentiment Analysis can play significant role in Banking Domain applications such as CRM, Fraud and Risk

## Customer churn and next best action

In customer churn analysis multiple streams of data such as transactions, customer profiles, and social media data are sourced and stored on a big data platform. The data is then analyzed to create sentiment scores and determine the churn probability of customers. This platform also provides the insight for financial services firms to offer the right product to the right person at the right time (next best action) by determining and recalculating probabilities and offers based on customer actions in a near real-time mode. There are numerous business applications for customer churn analysis including cross-selling and attrition mitigation to increase profitability for retail banking or insurance, determining product pricing trends and determining how a particular offer will be received by a customer or set of customers.

## Insurance subrogation

Subrogation analytics can be used to determine the probability of a successful subrogation. Even a small improvement in subrogation efforts can yield an attractive return on investment. An insurance company with an effective subrogation department can offer lower premiums to their policyholders. Any monies recovered through the subrogation process go directly to the insurance company's bottom line.

For instance, for auto collision claims, Capgemini has built the capability to calculate a **fault measure** score using text analytics on unstructured data such as police reports, emails, survey responses etc. The idea behind this measure is to attribute the fault probabilistically to either driver and then to inform the claims department to focus only on the likely to succeed claims where the fault of the non-policy-holder is deemed to be greater. Fault measure in turn is used to calculate two key outputs: Probability of the success of subrogation and the settlement amount from successful subrogation.

## Fraud detection

Big data can be used to determine circular trading or trade manipulation patterns for a given instrument in a specific period of time and thus increase detection of internal trading. It can also be used to determine potentially fraudulent transactions in near real time based on multiple characteristics or factors which can be aggregated by combining other data such as utility bills, taxes paid, magazine subscriptions etc. to decipher footprint (in physical world) and behavior patterns and to differentiate false identities from real ones.

Each of these diamonds is well aligned to financial services company business objectives, is readily operational, and can typically be implemented based on data the FS firm is already collecting.

# Value Creation: Target Actionable Areas that Impact Business Outcomes

There are both technology and business dimensions to determining the value of big data initiatives. From a business perspective, accurate and timely decision-making allows firms to reduce risks and losses, lower regulatory capital requirements, compete more effectively in their target markets, capitalize on emerging business opportunities and enhance investor confidence. To successfully leverage the huge amount of data at their disposal, banks and insurers need to establish confidence in the minds of executives who struggle with trusting information used to make decisions. They need to create the governance required to leverage data effectively across the enterprise and adopt technology strategies that are led by business objectives. Then, they must pick specific actionable areas to address that will impact the desired business outcomes.



For insight on the technology component of big data value creation, please see *Grabbing Value from Big Data: The New Game Changer for Financial Services*.

Also, view these quick videos for more direct commentary from our Big Data experts:

- **Big Data for FS – Fact or Fiction:** What you need to know about the characteristics of big data to make the best decisions about your technology toolset.
- **Big Data “Diamond” Opportunities for FS:** Identifying the real, operational opportunities that are likely to drive specific, positive business outcomes in most banks and insurance companies today.
- **Calculating Value from Big Data:** Integrating the technology and business perspectives on value to harness the true innovation power from big data initiatives.



# Are You on the Right Path for Big Data?

Have you.....	If not.....
<p><b>Appointed a chief data officer that will look across all of the Big Data opportunities?</b></p>	<p>It is difficult to leverage Big Data without a holistic view because efforts are fragmented and inefficient. A data policy is required to set guidelines for what data can be used, levels of security and regulation, etc.</p>
<p><b>Identified the best set of opportunities for Big Data analytics based on desired business outcomes?</b></p>	<p>Here are two fundamental considerations to chart an initial course:</p> <ul style="list-style-type: none"> <li>• Do you have enough of the right information to capitalize on the most important opportunities to improve the customer experience?</li> <li>• Do you have enough of the right information in the hands of the right employees at the right time to control your business?</li> </ul>
<p><b>Created the innovation capability within the organization to leverage Big Data effectively?</b></p>	<p>Here are some considerations to prepare a blueprint for the Innovation lab:</p> <ul style="list-style-type: none"> <li>• Have you created a priority list of the use cases along with specific business outcomes?</li> <li>• Do you want to host the infrastructure completely inside the organization or benefit from the very competitive pricing of cloud providers (especially Amazon)</li> <li>• What's the acceptance of open source software in your organization and the extent of use if acceptable</li> </ul>
<p><b>Decided about creating the capability and capacity in terms of resources to support your Big Data Innovation lab that is creating a team of 'Data Scientists'</b></p>	<p>Data Scientist is a role that requires at least some knowledge of the following: applied statistics, programming and networking. We therefore suggest that you consider resources with formal training in statistics/ mathematics and programming. Teaching networking essentials is easier than statistics/math and programming.</p>



## About Capgemini

With 130,000 people in 44 countries, Capgemini is one of the world's foremost providers of consulting, technology and outsourcing services. The Group reported 2012 global revenues of EUR 10.3 billion.

Together with its clients, Capgemini creates and delivers business and technology solutions that fit their needs and drive the results they want.

A deeply multicultural organization, Capgemini has developed its own way of working, the Collaborative Business Experience™, and draws on Rightshore®, its worldwide delivery model.

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