The world’s data is growing at an astounding rate, expected to double every two years. However, data collected from a wide variety of sources such as blogs, emails, videos, social media sites, photos, GPS, and other types of sensors are often unused. What makes their analysis difficult are the three “V”s: their volume, the velocity with which they arrive, and their variety.

**Big Data Analytics in action:**
- Identifies future at-risk borrowers so that proactive measures can be taken to prevent delinquency and default
- Supports investigations into government regulatory filings or fraud
- Defines custom collection strategies based on risk score
- Prioritizes borrowers in the inbound ACD queue based on risk score
- Engages high-risk borrowers in multi-channel strategy to prevent delinquency
- Call Center Capacity Analytics
Big Data Analytics

“Big data is a term applied to data sets whose size is beyond the ability of commonly used software tools to capture, manage, and process the data within a tolerable elapsed time.”

Xerox gets access to a variety of very interesting data sets, including those from click-stream, emails, hospital admissions, health care claims, system logs, fare and toll collection logs, credit and debit card transactions, Twitter, and Wikipedia. Equipped with HIPAA-compliant compute facilities, Hadoop clusters enhanced with dynamic dashboards for a multitude of analytics results and predictions and a private cloud infrastructure, we provide the required data security and processing power to analyze sensitive data sets.

Big Data Analytics is a multi-application predictive data analytic platform designed as a scalable and extensible prediction engine for Big Data. It uses all available information (internal/public) to generate predictions while modeling the entire population. Big Data Analytics is not a single technology, but a data-driven approach we use to develop and deploy customized solutions to business challenges. Big Data Analytics’ specialized analytics are delivered through a service model. Big Data Analytics is domain agnostic and can be used in financial services, transportation, human resources, etc., in a variety of applications such as:

- Customer segmentation and spend potential
- Fraud identification
- Credit & financial risk analysis
- Customer retention and churn management
- Up sell
- Market basket analysis
- Business Activity Monitoring
- Demand and Sales forecasting
- Operational analytics
- Targeting and Personalization
- Image Personalization
- Transportation and Congestion modeling
- Sentiment Analysis
- Social Graph Analysis.

GovAnalytics uses a wide variety of methods and algorithms including but not limited to:

- Analytic Algorithms
- Classification techniques such as Logistic regression, Naive Bayes, Neural Nets, Classification trees, Random Forests, Support Vector Machines
- Prediction techniques like MLR, K-nearest neighbor, Regression Trees, Fuzzy logic and Neural Nets.
- Segmentation and clustering such as Latent Dirichlet Allocation, Hierarchical clustering, Canopy Clustering, Spectral Clustering, k-means clustering
- Affinity analysis / Association rules, Frequent Itemset Mining, Recommendation Learning, Collaborative Filtering
- Applied Probability modeling such as Hidden Markov Models, Waiting Line Models

Case Study (Loan Payment)

When extended economic downturn caused repayment stress for borrowers in our $60B+ managed student loan portfolio and scoring the entire portfolio using third-party credit bureau data was not economically feasible, our data scientists developed an early warning system for borrower risk using Big Data technologies and predictive analytics. The technology identified future at-risk borrowers so that proactive measures could be taken to prevent delinquency and default. Our solution:

- Relies on free data sources
- Runs on low-cost computing hardware
- Extensible to new information (social web)
- Proved high prediction accuracy
- Resulted in significant reduction in delinquency rates
- Lowered collection costs

Case Study (Call Center Dynamic Queuing)

Traditional ACD routes calls on a first-come, first-serve basis based on client’s selections in the IVR. Risky clients/citizens will likely drop while in queue. Using Big Data Analytics’ Dynamic Queuing, calls are prioritized based on risk-score (and IVR selections), ensuring that at-risk clients/citizens reach an agent.

Case Study (Digital Government Citizen Web Site Analytics)

Using Big Data Analytics, we can help federal government in finding answers to the questions like:

- How many hits, unique visits and unique users do we get?
- Where do these come from geographically speaking?
- What do we get?
- How do we empower federal operations team to better assist citizens?
- Let us help your agency substantially reduce cost; improve service levels, and direct valuable resources to initiatives that generate citizen satisfaction.

Case Study (Call Center Capacity Analytics)

Big Data Analytics can be used to optimize call center staffing and operation by providing answers to following questions:

- Is the call (contact) center staffed right?
- What are the occupancy rates?
- What are the changes needed to meet a certain occupancy rate?
- What automatic and predictive analytics are in place to optimize?
- What analytical tools empower operations folks?

About Xerox

Xerox is the world’s leading enterprise for business process and document management. Xerox technology, expertise and services enable workplaces—from small businesses to global enterprises—to simplify the way work gets done so they operate more effectively.

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