ANALYTTICA
Data Science In Motion

Analytics & AI for Small & Mid-sized Financial Companies

Champion Challenger ML Framework for a US based Lender

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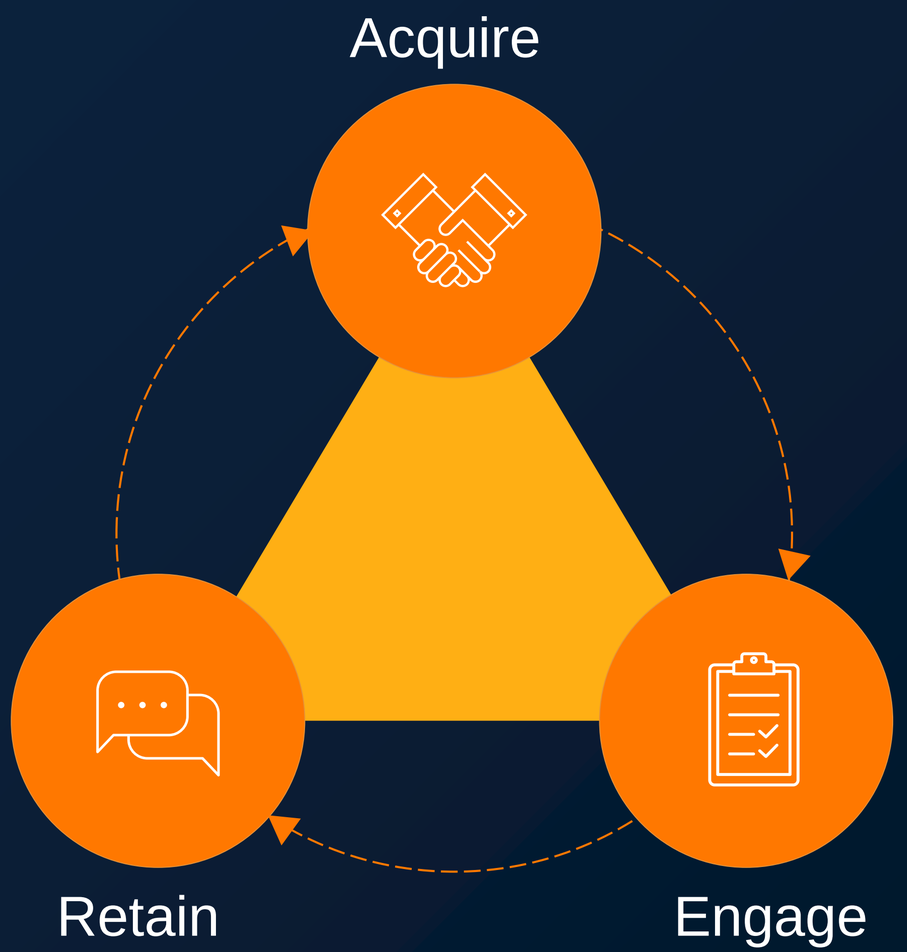
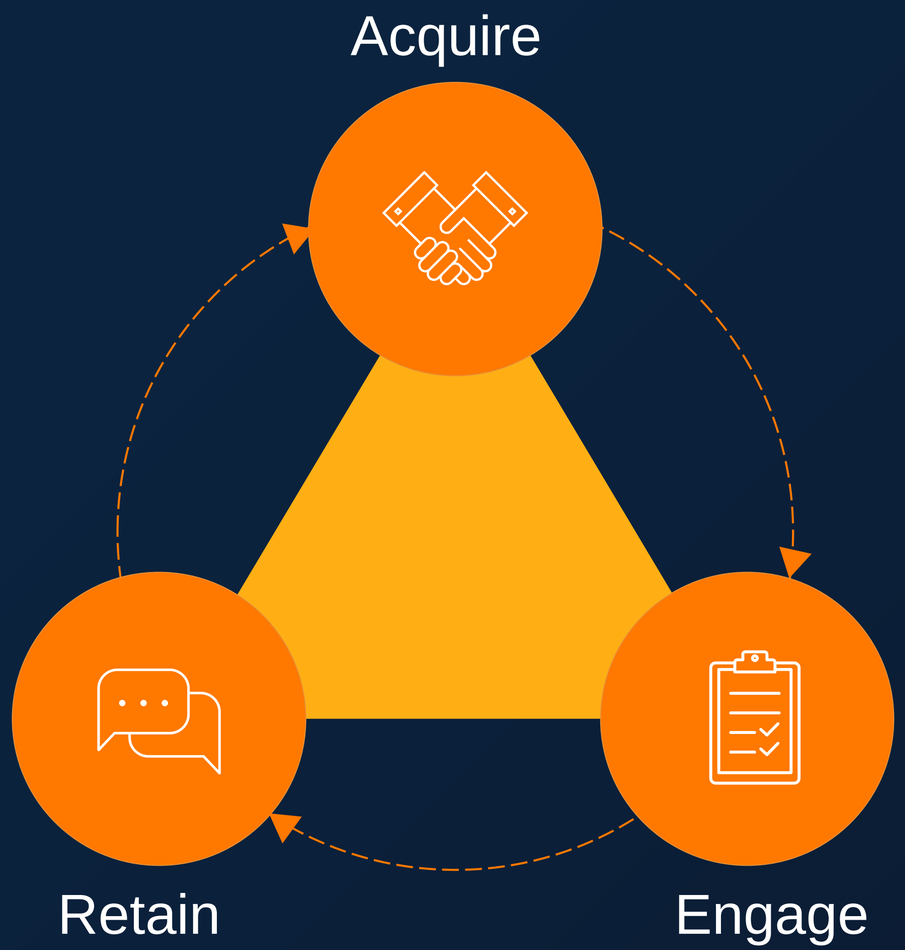
Banking and Financial Services Industry

Flag Bearer in Leverage of Analytics for Business Impact

- Customer Information
- Data Stewardship
- Competition & Market
- Regulatory aspects

Customer Lifecycle Management in BFS






Revenue


Customer Satisfaction


Cost


Risk

Descriptive Analytics

Diagnostic Analytics

Prescriptive Analytics

Predictive Analytics

Example Use Cases Across the Customer Lifecycle – Credit Card

	Analytics for Acquisition	Analytics for Customer Management		Analytics for Retention
Describe	Prospect Economics	Customer Profitability	Estimate Wallet Share	Voice of Customer Analysis
	Prospect Campaign Effectiveness	Customer Segmentation	Customer Campaign Effectiveness	Historical Attrition Analysis
	Prospect Segmentation	Product Usage	Cross-Sell Win/Loss Analytics	Retention Campaign Effectiveness
Predict	Prospect Potential	Default Likelihood & Severity	Customer Lifetime Value	Customer Attrition Likelihood
	Prospect Fraud Likelihood	Transaction Fraud Likelihood	New Account Fraud Likelihood	Customer Value-at-Risk
	Prospect Price Sensitivity	Product Usage Opportunities	Customer Price Sensitivity	Loss Mitigation Effectiveness
Optimize	Prospect Offer Response Estimation	Product Innovation	Customer Offer Response Estimation	Sentiment-Based Offer Optimization
	Prospect Offer Palette Management	Service Channel Optimization	Event-Driven Offer Optimization	Macro Economic Data Driven Offer Optimization
	Prospect Offer Optimization	Default Management Optimization	Customer Relationship Optimization	Retention Tactic Optimization

Leverage of Data Analytics in Financial Companies
“Large” vs “Small and Mid-Sized” Companies

Large Organizations

- Advanced analytics approaches, tools and techniques
- ATL and BTL targeting optimization – Mix modeling etc.
- Advanced risk scorecard
- Call center data – voice and text analytics
- Advanced unit level P&L

Scale needs continuous optimization; even a few basis point improvement turns into a multiplier effect on P&L

Small & Mid Sized

- Measuring the effectiveness
- Competitive analytics
- Improving the customer touch-point – record and optimize interactions
- Data analytics for improving the underwriting processes

Although the scale is low; cost optimization and threat from competition needs to be mitigated; get better at risk management

EXAMPLE CASE

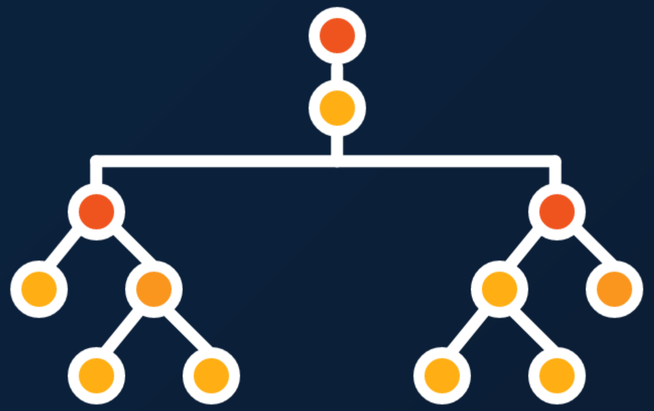
A US based mid-sized Financial Company, which operates in a niche market segment, is in the business of extending credit (in the form of personal loans) to customers who are indexed high in terms of consumer credit risk.

Business wanted to leverage the power of advanced data analytics to optimize their business actions for marketing efficiencies and risk management.

Existing Approach
Champion

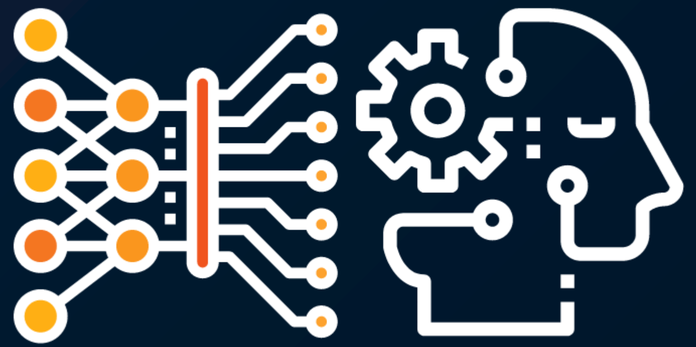
Simple Decision Tree
Based Targeting

- vs -



Proposed Approach
Challenger

Advanced Machine
Learning based Targeting



Challenger Approach

Data Preparation & Pre-Model Stages

ATH Precision

A Powerful Ecosystem for Business Integrated Analytics

We leveraged our proprietary tool Analyttica TreasureHunt (ATH) as a sandbox environment for the champion challenger approach with the ML algorithms

Rapid experimentation in ATH Sandbox environment

Sample data ready to be fed into ATH sandbox environment

1. Data Management
2. Data Mining
3. Machine Learning
4.
5.
6.

Regression Models
- Linear Regression
- Logistic Regression
- Random Forest Regression
- Venn diagram
- SVM Regression
- RBF Network
- PLS Classifier

Regression Analysis
- Coefficient of Determination

Survival Analysis
- Cox-PH Survival Model
- Survival Probability

RFM Analysis
- RFMAnalysis

Classification
- Naive Bayes
- Neural Network
- SVM Classifier

Logit Model

Naïve Bayes

Gradient Boosting

ANN

Sensitivity

Specificity

Misclassification

Decision Point

	Sensitivity	Specificity	Misclassification
Logit Model	Results are masked due to client confidentialities		
Naïve Bayes			
Gradient Boosting			
ANN			

Logit Model and Gradient Boosting beat the existing champion and perform equally well

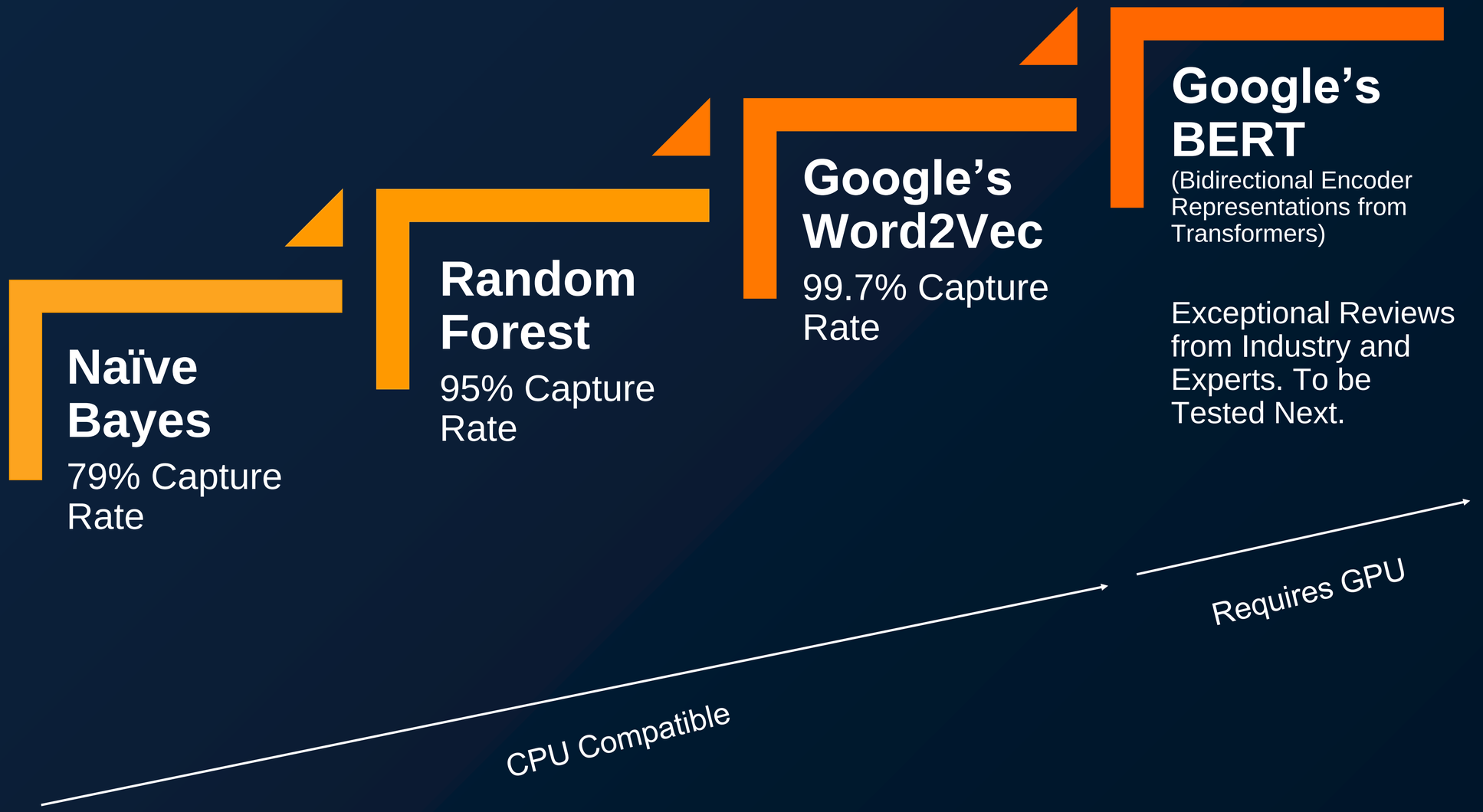
Sensitivity = TP/(TP + FN) Proportion of actual ‘Positives’ (‘Responders’) captured by the model over all the ‘Positives’

Specificity =TN/(TN + FP) Proportion of actual ‘Negatives’ (‘Non-Responders’) captured by the model over all the ‘Negatives’

Misclassification Error = (FN + FP) / (TP + TN + FP + FN) Proportion of misclassified sample

Leveraging ML Algorithms for Text Analytics and NLP

- Customer support team of a large healthcare organization is responsible for identifying the high priority customer complaints out of all the high volume of the total complaints raised and resolve them quickly.
- We leveraged advanced machine Learning algorithms to capture the inherent pattern in the text of customer complains and developed a solution which can identify the high priority complaints.



Thank You

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