



Analytics for Retail Banking

The two immutable truths of retail banking are:

1. The **customer** is at the heart of retail banking.
2. Knowing the customer and driving profitability through this knowledge is the lifeblood of retail banking.

However, increased competition, advent of technology and **proliferation of channels** to service the customer, have led to the following:

Increased usage of impersonal electronic services

Access to low cost electronic services has led to banks operating with a widespread and diffuse customer base. This has in turn led to:

- Lower customer intimacy because of the impersonal nature of electronic channels
- Reduced switching costs between different banks
- Increased chances of fraud and credit risk

Low customer intimacy level along with the security issues related to electronic services like Internet banking increase the potential for fraudulent activities like money laundering.

Shrinking opportunity window to know and influence Customers. This has led to reduced time window for marketing products and services. The graphic shows the relevance of an event (such as a promotional event) to a customer as a function of time elapsed after the event. This shows that customer interest peaks and falls rapidly. This makes it absolutely necessary for banks to **optimally leverage all available customer touch points** so as to be able to influence the customer.

Modeling Lab

Dedicated to data collection, analysis and modeling, the Modeling Lab



at DecisionCraft is headed by [Dr. Jitendra C Parikh](#). Dr. Parikh, a theoretical physicist (PhD-Physics, University of Chicago) with 40 years' experience of research and teaching, has expertise in modeling **complex real systems**. He is supported by a team of MBAs, engineers, and statisticians.

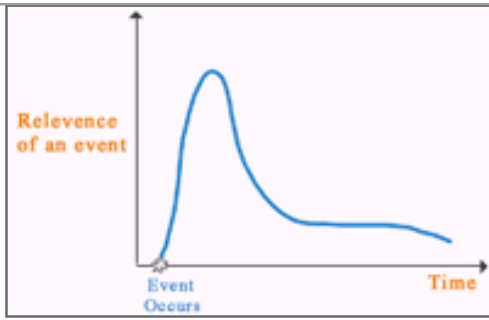
The team at DecisionCraft has expertise in state-of-the-art modeling techniques such as artificial neural networks, stochastic processes, chaos theory, statistical methods, simulation, data mining algorithms, etc.

More Resources

- [Why Model](#)
- [Data Mining](#)

About DecisionCraft Analytics

DecisionCraft Analytics provides decision-making solutions to improve operational efficiency and



In short, these points amount to a reduced knowledge of customer behavior. Banks worldwide have responded to this challenge by using **modeling and decision theory based solutions**. Some of the issues addressed are: assessing life cycle value of customers, designing focused marketing campaigns to reduce cost and improve retention, improving in-bank

service levels, modeling credit risks and scientifically determine risk capital and so on.

The following matrix examines the important issues facing banking in the light of key challenges and proposes modeling based solutions.

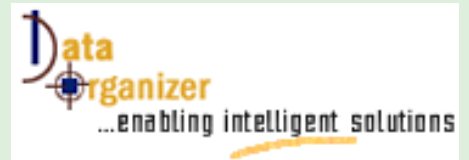
Solutions	Challenges	Modeling Methodology	Techniques
Increased competition	To focus on the best channels, the best products, and the best customer segments for specific products	Analyzing the customer data and past marketing campaigns for detecting patterns	Scoring using estimation techniques like Artificial Neural Networks (ANN), Cluster Analysis, Generation and testing of hypothesis
High churn rates of profitable customers	Determine factors contributing to churn, framing plans to prevent churn	Collecting and analyzing data on profitable customers who have left to determine patterns	Scoring using Estimation Techniques like ANN, Clustering techniques, Structured Queries
Leveraging profitable customers and reduce new acquisition costs	Profiling product affinity with existing customer portfolios	Analyze buying patterns to find out which products went together and who bought those products	Market Basket Analysis
Improve Customer Loyalty	Optimally locate ATM's to facilitate potential and existing regular users	Profile the existing and potential high usage customers, determine optimal locations	GPS, Linear Programming, Algorithmic Graph Theory, Computational Geometry
Improve Customer Loyalty	Minimize waiting time of customers by optimizing	Simulate the customer arrivals to number of service counters	Simulation, Queuing theory principles arrive at optimal number of service counters for

Other issues relate to handling increased credit risk and fraud, because of a diffused customer base using impersonal modes for transactions. Data mining solutions have again been of help by warning banks of potential delinquents, by "learning" from patterns in profiles of known delinquents.

The key drivers for successful implementation of the modeling based solutions for retail banking are:

- 1. Problem identification and structuring:** This is the first and most crucial step in any modeling exercise. A retail bank may be losing money. The

business responsiveness. Our consulting services employ our strengths in industry knowledge, conceptual rigor, and information technologies. Developed using concepts from decision theory; our solutions use robust optimization, simulation, and statistical engines adapted to our client's focus areas.



dataOrganizer™

The first step in data mining is getting together clean usable data onto one database.

dataOrganizer™ is a web-enabled application capable of browsing, cleaning and integrating data from diverse sources onto one destination.



qcCharts™

qcCharts™ features interactive data visualization with a range of charts capable of exploring patterns in data. In combination with dataOrganizer™, it can provide enterprise-wide visibility to data, charts and analysis.

problem could either be attrition of good customers or campaigns not getting focused on the good customers. The proposed solution, as seen from the table above, would be very different and the investment in the modeling exercise would not be fruitful.

2. **Data collection and preprocessing:** This is very important and consumes more than 75% of the time of any modeling assignment and is critical in getting correct results.
3. **Proper tool selection:** This depends on problem definition, nature of variables and size of data available. ANN may be the most appropriate for credit scoring of retail customers. However, if data is limited, statistical tools or decision trees may have to be used.
4. **Sense-making of solutions with domain experts:** Involvement of domain experts through the modeling process is critical for zeroing on practical and actionable solutions.

Next Issue: [Building Intelligence in Budgeting](#)

Previous Issue: [Virtual Supply Chains](#)
