Information Alliance, Inc.

Transforming data into decisions

Case Study

Leveraging a Customer Data Warehouse to Drive Marketing and Revenue Growth

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Company Overview

Company X is a multi-billion dollar lending institution focusing on the sub-prime customer market. Their target markets is not the customer with high-end FICO scores, but customers in the mid-range or "sub-prime" area, who, from a lender's perspective, may pose a slightly higher risk. These individuals are good people, and good customers, but due to various past or present circumstances, require a higher interest rate associated with their loans. The company is headquartered in Texas, and employs several thousand people across the country. The company has been in business for many years, and has a customer base of over one hundred thousand customers, some of whom have had multiple loans with the company over a number of years. The company operates hundreds of loan offices across the United States and Canada, and offers a wide range of financial products ranging from home loans, auto loans, and credit cards. As you can imagine, within each of these areas, there are many different types of financing arrangements.

Business Problem

As with any other lending institution, the goal is to grow the business, and increase profitability. In fact, for companies with shareholders, profit maximization is the primary fiduciary responsibility of the executive board. Growing the business is typically achieved in one of three ways (or more than one of these);

Lend More to Existing Customers

- Refinance or restructure existing loans. This will secure cash flow for a longer period of time, and mitigate the risk of losing an existing customer, or having a customer default on a loan altogether.
- Extend existing lines of credit. For customers with a good payment history, and who are at or near their lone-of-credit (LOC) limit, the company can assess the risk of extending the customer's borrowing limits.
- Approve additional loans for new consumer products (e.g. boat, car, house, etc.).

Acquire New Customers

- Identify new customers in the market (i.e. "grow the market"). This could involve soliciting entirely new customers, or revisiting individuals who were denied loans in the past.
- Capture market share from a competitor (This is not easy, since the competition is trying to do the same thing).

Develop New Products and Services

- Develop new types of structured loans that meet the needs of a different target market.
- Modify existing loan packages to adapt to changing economic or market conditions.

Any business person will tell you it is cheaper to keep an existing customer than it is to acquire a new one. Therefore, it is important to know your existing customers! What are their borrowing patterns, borrowing limits, and credit history? What do some of them have in common? Which customers pose the least business risk? The greatest risk? To know these things, you must acquire, analyze, and maintain hundreds of pieces of information on each customer. Some information is collected during the loan application, and through subsequent interviews and surveys. Other information is collected and updated during the life of the customer relationship. Still more information can be purchased from credit score companies (e.g. Experian, Equifax, etc.).

Customer Analysis

To help drive decision-making by financial managers and to identify potential revenue opportunities within their existing customer base, the company had to analyze or "query" their customer data to understand spending trends and patterns. The following questions represent a handful of the questions routinely asked;

- Of all of our customers who have an existing mortgage with us, how may have a sufficient loan-to-value (LTV) ratio to qualify for a home equity loan? We need to know who they are, so we can send them a letter asking if they are interested in a home equity loan or line of credit.
- Which of our customers are within a few months of paying off their car or home loans? We need to start sending them letters asking if they want to take out a new loan to buy a new car or house.
- Which of our customers have existing home equity and other outstanding credit card debt (from other lenders)? We need to ask these people if they want to take out a home equity loan to pay off their credit cards.
- Are there customers who may want to refinance existing loans to lower their monthly payments? We need to know who these customers are. This will ease the monthly financial burden on the customers while establishing a longer term revenue source for the company. It will also lessen the possibility of them seeking loan instruments from a competitor.

This is just a sample of the types of questions a company must ask itself to identify opportunities to retain customers and to continue to provide financial assistance to these customers. To answer these questions, the company must acquire, manage, and analyze large amounts of data on their customers.

The Database

Company X formed a Customer Data Warehouse (CDW) Team to develop an Oracle data warehouse to store customer information. This data warehouse served as the data source for a Decision Support System (DSS) for marketing analytics, and for a campaign management system (Prime @Vantage) for developing marketing campaigns.

On a monthly basis, credit bureau information was uploaded to the CDW. Company X subscribed to three different credit bureaus, and uploaded credit information from all three bureaus into a single customer table, while maintaining a separate copy of the original load file. Collectively, their proprietary and purchased customer information included the following;

- A unique Customer ID assigned to each customer in the database (a surrogate ID, not associated with their account number or social security number). The customer table contained a rolling three-year history of monthly customer "snapshots". So, at any given month, long-term customers would have 36 records in this table. A rolling 3 year history was determined to be sufficient for historical analysis and trending exercises.
- Dozens of customer (borrower and co-borrower) demographic attributes were stored. Age, gender, education level, income level, number of children living at home, number of cars owned, whether they owned a home or rented, and occupation, just to name a few. Within this table, customers were assigned to the appropriate age and income brackets to support different types of querying and analysis.
- Customer IDs were tied to one or more loan (or account) IDs. This way, at a glance, it would be easy to retrieve the entire loan history and activity on a customer (or group of customers).

- The appropriate detailed and summary tables were maintained to support reporting and analytics. Summary tables were refreshed during the load cycle to improve performance for summary level reporting needs.
- Monthly financial information maintained included interest paid, principal paid, remaining balance, remaining months, interest rate (for fixed and variable loans), revolving credit balances, and average payment amounts.
- The company also developed and maintained several performance and quality rating codes for customers, which took into consideration timeliness of payments, quantity of delinquent payments, and delinquency duration (e.g. 30, 60, 90 days late, etc.).
- The database stored data on any repossessions or foreclosures, balances at the time of repossession or foreclosure, dates of occurrence, etc.
- Late payment information was stored, including the quantity of late payments, average days late, as well as any courtesy charge-offs or adjustments.
- Since the database contained financial information on US and Canadian customers, there was a monthly upload of currency conversion factors maintained by a financial analyst. This enabled the reporting across all customers in US dollars.

Data extraction, transformation, and loading (ETL) was accomplished by custom mappings created using the Prism tool suite, and by custom Cobol code that ran on a scheduled basis (nightly, weekly, and monthly). Maintaining these mappings and COBOL programs was by far the largest ongoing expense for the CDW. In addition, completing the scheduled loads within a limited nightly "load window" was a growing challenge.

Reporting and Analytics

- Detailed and summary reporting was accomplished by using Cognos Impromptu. Analysts and managers requiring direct access to customer data were required to purchase an Impromptu client license (typically charged to their Cost Center). The CDW Team also provided desktop support for this application. On an as-needed basis, the DSS Analyst on the CDW Team would conduct 4 hour training sessions on basic tool use. Actual customer data was used during the training sessions.
- To provide end-users with the necessary view of customer data, an Impromptu catalog was developed and maintained by the DSS Analyst. Client Impromptu installations would point directly to this catalog. The catalog contained a logical arrangement of all customer data elements stored in the CDW, and had pre-defined table joins built-in to ensure end users would obtain the correct results, and performance would be acceptable.
- Clients could create and save adhoc query templates to their local desktops for reuse. They could also save personal versions of standard reports (with pre-defined filter criteria selections). The DSS Analyst assisted with report development, when needed.
- Multi-dimensional analysis (i.e. OLAP) was performed using Cognos Powerplay. These OLAP cubes required additional analysis and design time to create, but offered end-users the ability to analyze customer data from many different angles or "dimensions".

Summary

Once the CDW was established, and the necessary reports were defined, Company X had ready access to customer information which was critical to ensuring successful customer retention, revenue growth, and maintaining an overall competitive advantage in the marketplace. However, identifying which data elements to capture, how to model the database, how often to refresh the data (and *how* to refresh the data), and the appropriate method of information delivery required them to develop or procure expertise in all of these areas.

Failure to make the correct design decisions when constructing the information delivery solution would dilute the decision making effectiveness of those who rely on the information. Moreover, making the corrective changes to the data repository, the information delivery platform, or both would result in expensive rework. The company realized that it was much more cost effective to take the additional time to do it correctly the first time, than to try to incorporate fundamental design changes after implementation.

About Information Alliance, Inc.

Information Alliance, Inc. is a management consulting firm dedicated to helping clients achieve their business goals by providing expertise in project management and business analysis, with specialization in data warehouse, document management, and information delivery implementations. Their depth and breadth of experience, coupled with a structured approach helps clients transform data into useful information.

Information Alliance consultants have managed dozens of project for Pacific Northwest companies, including one of the largest regional electric utilities. Strong emphasis is place on planning and analysis activities. Specifically, ensuring executive-level sponsorship is in place, and that user requirements and concerns are completely understood and documented. Finally, Information Alliance works closely with clients to develop an incremental roadmap that documents a phased approach to delivering capitalizable assets along the way to arriving at the final solution.