

Insurance Intelligence

Now and beyond

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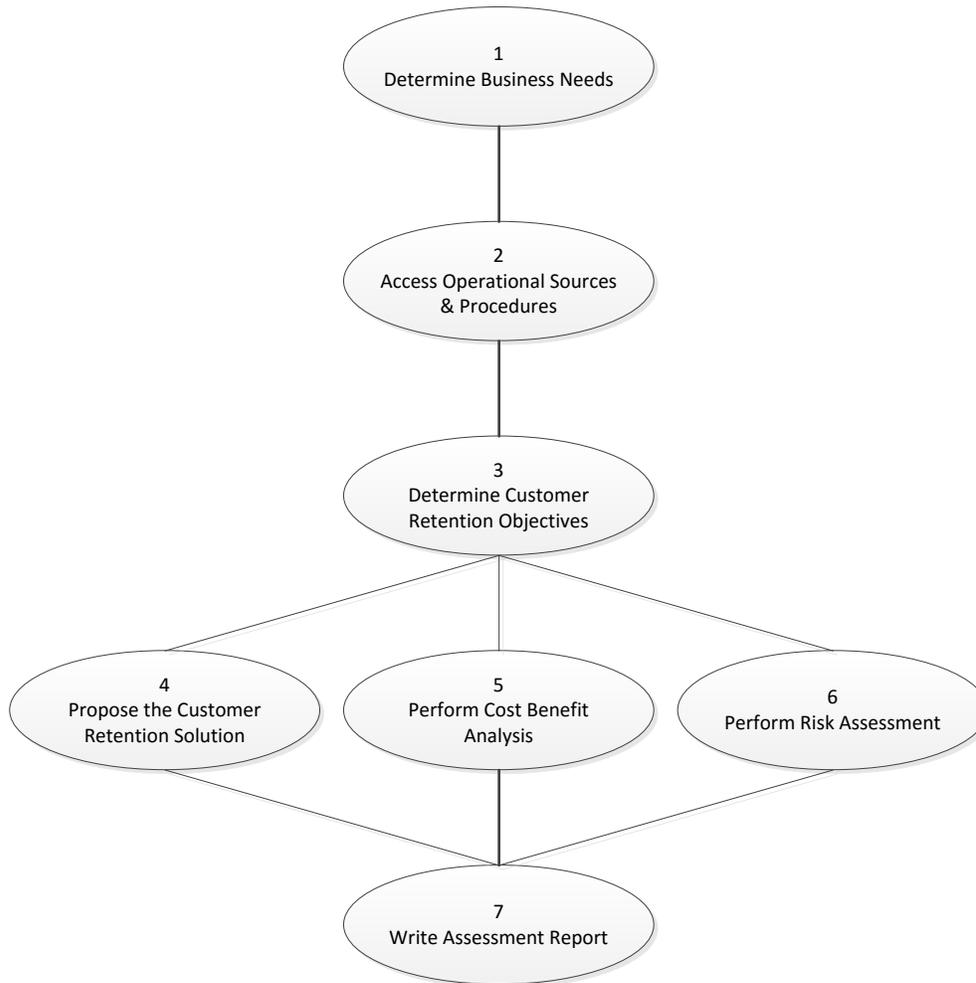
Customer Retention

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1 Business Case Assessment

There are nine activities involved in the business case assessment as shown below:



Tasks like 4,5 & 6 can be processed in parallel.

2 Business needs

Customer retention is very important because acquiring a new customer is far more [expensive](#) than keeping an existing one. This is even truer if the market is saturating or saturated. Retention is important to most businesses. The most important customer retention strategy is to identify customers who are likely to leave (potentially to rival providers). They can be identified and profiles are developed. The objective of this work is to develop customer retention programs that should allow prevent churning actions.

Customer surveys are also very important means for identifying potential problems in customer relationship. Two most common reasons for customer defection may include inadequacy in [service](#) quality and cost competitiveness. Asking customers to rate our services along with their demographic and psychographic profiles and analyzing them can reveal customer groups who are not happy with services. Survey information can be very important churn predictors.

Customers become “churners” when they discontinue their subscription and move their business to a competitor. That is, churning is the process of customer turnover. This is a major concern for companies with many customers who can easily switch to other competitors. Examples include credit card issuers, [insurance](#) companies and telecommunication companies.

With effective churn management, enterprise can determine what kinds of customers are most likely to churn, and which ones are most likely to remain loyal. Part of the process is determining customer value, as sometimes you may want to let go customers that are no or very little profitable. When this kind of knowledge is available to us, marketing managers may take informed and strategic action to minimize defections, win back valued defectors, and attract more cost-effectively the right kind of customers in the future – including those that are least likely to churn.

However given that most customers will only signal their intention to churn when they call to cancel their account, it is difficult using standard techniques to target for anti-

churn marketing. One solution to combating churn in insurance industries is to use data mining techniques. Data mining may be used in churn analysis to perform two key tasks:

- Predict whether a particular customer will churn and when it will happen,
- Understand why particular customers churn.

These two tasks are referred to as “prediction” and “understanding”. They represent the two most important aspects of data mining in use today. By predicting which customers are likely to churn, we can reduce the rate of churn by offering the customer new incentives to stay. By understanding why customers churn we can also work on changing our service so as to satisfy these customers ahead of time. In addition, the chance of the customer churning after action is taken can be assessed by the data mining tool so as to choose the best strategy in terms of cost and effort.

Before either prediction or understanding is performed, however, data must be gathered. This is typically done in a data warehouse, which is a large repository of clean, non-volatile and historical data. The types of information that are stored in a data warehouse for a churn analysis include:

- Customer demographics, i.e., age, gender, marital status, location, etc.
- Policy statistics: how many policies, lines of business, durations of each policy.
- Billing information for each customer – what the customer is paying ...

With the maturity of advanced predictive technology, customer churns can be managed more efficiently and effectively.

3 Cross-selling as a mean for customer retention:

Most insurance companies are set up for new customer acquisition. Acquisition is easy to measure. Bonuses are paid for new customers. You can count the new customers on your database. Customer retention is harder to measure. How can you prove that, as a result of your efforts, 42,687 customers did not drop their coverage last year? This is tough to prove, and therefore hard to reward.

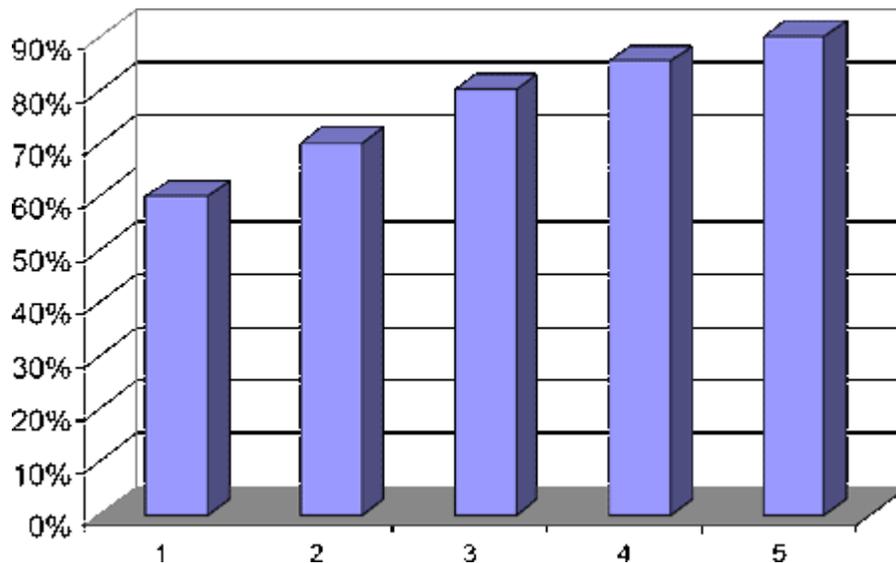
At the same time, retention can be very cost effective. Many studies have shown that \$1 paid towards customer retention increases profits by more than \$5 spent on new customer acquisition. What are companies doing about this situation?

The two methods were:

- Sell a second policy to existing customers.
- Communicate often with customers.

4 Selling a second policy

Most insurance companies try to sell an additional policy to their current policyholders. What they may not realize is that the value of the second policy is much more than the additional profit from that policy. The value is in increasing the retention rate (the persistence) of the first policy. Somehow, when people own two (or more) policies from a company, they are more loyal than if they own just one. Banks have discovered this, and many of them have been able to create graphs like this:



Retention rate based on the number of products owned.

Using this knowledge, several companies have launched organized programs to get their agents to sell a second policy by offering customers a discount on their current policy if they buy another product. The most advanced programs use the web as a delivery vehicle to the agents.

First, the company uses their database to determine the Next Best Product (NBP) for each customer, based on what they know about the customer, and the typical buying patterns of customers with similar demographics. Next, they figure out the lifetime value (LTV) of each customer now and later if they were to buy the next best product. Let's assume that the present LTV after five years is US\$4000 and, if they were to buy their NBP would be US\$7000. This means that the company will gain US\$3000 in profit by selling the additional product. From this you can subtract the cost of selling the new product, let's say US\$500. If you were to offer the customer a US\$1000 discount on the current product as an inducement, then you would still be US\$1500 ahead in profits.

	5 Year
Current LTV	SR4000
LTV with NBP	US\$7000
Gain	US\$3000
Marketing Cost	US\$500
Premium	US\$1000
Net Gain	US\$1500

The Next Best Product technique scores every customer by propensity to purchase, ranking them in deciles from most likely to least likely. These scores can be used to determine which customers to mail to on a rollout.

Although Cross-Selling & Up-Selling are practically good means of customer retention, they are out of this project scope where here we'll focus on Churn analysis and Client Value calculation.

5 Current financial consequences of the business need

Enterprise loses millions yearly as a reason of inability to identify potential churners.

6 Assess the operational sources and procedures

Assess the data quality of operational systems

The purpose of information quality assessment is to:

1. Assure that processes are performing properly
2. Identify processes and data that require improving
3. Certify the reliability of data for knowledge workers who depend on it
4. Provide feedback to information producers who create and maintain it
5. Develop a baseline to calculate the costs of nonquality information.

The effectiveness of an information quality assessment hinges on four factors:

1. Measuring the *right* data;
2. Against the right measures;
3. Using the right measurement technique(s);
4. Providing the right interpretation and feedback.

7 Assess the current data movement

- Review data extraction practices
- Review data manipulation practices
- Review data duplication practices

8 Assess current operational procedures

- Identify poor data entry practices
- Identify lack of edit checks

9 Determine Customer Retention Application objectives

- Identify the strategic business goals of the organization
- Define the overall BI decision-support objectives
- Define the project-specific BI application objectives
- Match the overall BI decision-support objectives to the strategic business goals

10 Proposed Intelligent Customer Retention System

10.1 High-level architecture for the proposed BI solution

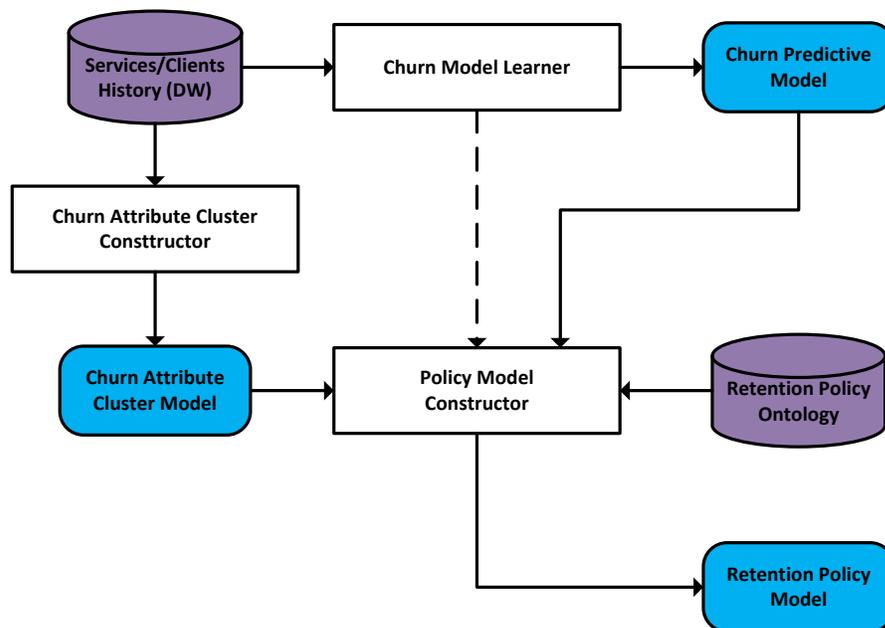
Our Intelligent Customer Retention system first learns an optimized churn predictive from historical services database by the decision tree-based technique to support the prediction of defection probability of customers. We then construct a retention policy model which maps clusters of churn attributes to retention policies structured in the retention ontology. The retention policy model supports automatic proposing of suitable retention policies to retain a possible cherner provided that he/she is a valuable insured.

The system suggests appropriate retention policies for possible churners according to their specific characteristics . In addition to predicting churners, our system deals with customer retention policies of various incentives and recommendations to deal with most possible causes of customer defection. It then digs out hidden correlations among the

attribute values of churn attribute clusters build upon the hidden correlations, which often reveal why a customer defects. The knowledge is then used to automatically propose retention policies for valuable churners. The retention policy ontology constructed not only can support the construction specific retention policies but also can help general retention policy design and analysis.

Our new system runs in two modes: the learning mode and the application mode. In the learning mode, it learns from a churn predictive model and constructs a retention policy model; while in the application mode, it uses the knowledge built from the above models to predict whether a customer defects and to propose proper retention policies to retain a potential, valuable cherner.

10.2 Learning Mode:



Legend: Dashed Lines denote process flow; solid lines denote data flows.

Flow Diagram of the Learning Mode.

10.3 Churn Model Learner

Using Decision Trees (C4.5 algorithm), the Churner Model Learner runs on Services/Clients database to build decision tree-represented churn predictive model. We use the learner here to identify the attributes that has an impact on the Churn Predictive Model and remove those that do not.

10.4 Churn Attribute Cluster Constructor

Designing suitable retention policies for possible churners is not an easy task for humans. To do it automatically is even harder. One naïve idea is to provide possible churners with policies according to each single attribute value. It, however, may miss hidden, but significant interactions among attribute values, which can play a key role in explaining why insureds defect. Our first task then is thus to discover how attributes are associated with one another by association rule mining technique. From the Services/Clients History of all Churners, we use 'MS Clustering' algorithm to mine the association rules.

10.5 Policy Model Constructor

10.5.1 Retention Policy Ontology

The retention policy ontology is a key component in our system that can categorize all retention policies into classes and clearly specify the conflict between them. The ontology can be designed to contain as many categories as the project team decides. We suggest to start with five main categories (according to the best practices) as follow:

1. Money Category: defines the policies with respect to various fees.
2. Service Category: specifies the policies associated with value-added services enterprise provides.
3. Goods Category: relates promotion plans that are associated with gifts & souvenirs.
4. Contact Category: lists promising channels in sustaining better communications with the insureds

5. Quality Category: contains the policies of improving quality-of-service, which involves the attitude of MRs (and other sales channels), efficiency of problem-solving, and so forth.

There are however, two issues we have to cope with about these collected retention policies. First, they may conflict with one another: each policy has its own specific function but the combination might not be always good things to a churner because of, e.g. mutual exclusion. The second issue is the genera of policies: policies with similar properties should be grouped into the same class to facilitate their usage. We can solve these two issues by constructing a retention policy ontology that can completely categorize all the retention policies into classes and clearly specify the conflicts between them.

11 Description of CRS GUI

Customer Retention System

Customer ID

Customer Details:

Customer ID	1158093	Date Start	2006-08-07
English Name	DEMALATA, DAISY DORADO	Date End	2006-09-06
ID NO	2208034245	Tenure Band	
Sales Man Code	151231	Premium Band	0
Control Account	111064000000	Claim Band	0
Branch Code	15	LOB	TR
Loc Int Flag	2	LOBs	TR
Cust Type	PL	GLOB	GA
VIP Flag	N	GLOBs	GA
Segment Code	PL	Churner LOB	0
Gender	F	Churner GLOB	0
Age Band	2	Churner Period	0

Customer Retention Panel :

Churner 

Churn Pr

LTV

Customer History

Date_Start	Date_To	SMC	CTRL_ACCT	BRC	LIF	CUST_TYPE	VIPF	SGC	AGB	PRB	CLB	TNB	globs	Lob	Glob	ch_Lob	ch_Glob	ch_Prd
2007-06-23	2008-06-22	151231	111064000000	15	2	PL	N	PL	2	1	0		GA	TR	GA	0	0	0
2006-09-07	2006-09-06	151231	111064000000	15	2	PL	N	PL	2	0	0		GA	TR	GA	0	0	0

Legend

AGB	Age Band
CLB	Claim Band
BRC	Branch Code
LIF	Loc Int Flag
PRB	Premium Band
SGC	Segment Code
SMC	Sales Man Code
TNB	Tenure Band