

Event variables in client analytics

Co-operators Insurance & Financial Services is a Canadian company that sells mostly life insurance and FADR insurance products (where FADR stands for Fire, Accidents, and Diverse Risks). More than 743 000 residences, 1,1 million vehicles, 36 000 farms, and approximately 145 000 businesses are insured by Co-operators. One of the objectives of the company is to gain a better understanding of its clients so as to offer them relevant products in a timely fashion. Several forecasting models were developed with this goal in mind.

The FADR insurance market is extremely competitive in Canada. Many tools can be found on the internet for comparing insurance products, thus allowing clients to compare their insurer's renewal offer with those of its competitors. Thanks to mobile applications, the client can renew or cancel his insurance policy with a single click. Since the clients can obtain a discount when purchasing several products at the same time, they have an incentive to transfer their entire risk portfolio to another insurer. Studies have shown that keeping a client is actually more beneficial than attracting a new one (several marketing teams can confirm this). Also it is much simpler to sell an insurance product to a company's client than to a potential client ; a relationship of trust already exists with the client and much information on the client has already been collected.

To gain a better understanding of a client's behaviour, we have identified two types of factors : static factors and time-dependent factors. The static factors are those client's characteristics that change little or not at all over a five-year period : gender, occupation, and so on. The time-dependent factors are those characteristics that may vary over this period : for instance the number of insurance products, the client's age, or the occurrence of a claim in the past twelve months.

We wish to understand better the various factors underlying a client's short-term decisions concerning its products purchased from Co-operators (purchase of a new product, withdrawal, renewal, etc.). Here the short term corresponds to a twelve-month period, for instance. More specifically, we have a growing interest in the time-dependent factors (or events) that have occurred in the last five years. Furthermore, we wish to incorporate this notion of event into diverse forecasting models (GLM models, survival models, etc.) without a loss of statistical power or predictive value. We are thus looking for a method or model allowing us to forecast a client's decisions over the next year.

The simplest approach for this problem is to model a client's choice by taking only the static factors into consideration (and fixing the time-dependent factors). An approach that is more complex but leads to a better understanding of the client consists of combining both types of factors. The final approach must allow the inclusion of several time-dependent factors.

The obtained model will serve as the basis for the next campaigns of the Co-operators marketing team. It is important to prioritize the annual contact of those clients that are the most likely to withdraw from Co-operators.