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Dynamic Model for Behavioural Scoring

Abstract

Information on customer behaviour varies both in volume and type of data throughout the customer lifecycle. This information is used in behavioural models for predicting customer propensities, in particular the propensity to missed loan repayment or fraudulent behaviour.

Continuous monitoring of those propensities can be effective, if all the information available at each point along the lifecycle is utilised in predictive models. This requires either frequent replacement of static models, or applying dynamic models capable of using the new information as it comes. The former approach is rather troublesome and costly in maintenance, while the latter has an advantage of extending the explanatory value of the model so that it shows also time trends in modelled relationships, gives results consistent in time and is more transparent which is welcome by the business beneficiaries. The paper proposes Bayesian approach to modelling customer propensities designed to account for both changing explanatory set of information and the shape of relationship between the explanatory variables and customer propensities.

The paper presents comparative results of applying the proposed method and other methods based on a real life project run together by StatConsulting and Polkomtel SA, one of the leading mobile telecom operators in Poland. The approach proved to offer an effective response to business needs and appears to be superior to competitive approaches with respect to predictive performance. It allows to diagnose customer behaviour throughout his lifecycle and show changes of the impact of customer characteristics over time.

Arkadiusz Ziemia, Statconsulting Sp. z o.o., arkadiusz.ziemia@statconsulting.com.pl
Piotr Markowski, Polkomtel S.A., piotr.markowski@polkomtel.com.pl
Wojciech Latusek, Polkomtel S.A. wojciech.latusek@polkomtel.com.pl