# From Hands-On to High-End: Advances in Customer Base Analysis

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## Abstract

This Special Session focusses on recent developments in Customer Base Analysis, which include new modelling approaches and scientific enhancements for practitioners and researchers alike. On the one hand, many companies are still lacking the technical infrastructure and know-how to apply sophisticated Customer Base Analysis models and therefore need applicable tools and methods to analyse their customers´ behaviour and reactions to marketing efforts. On the other hand, the technical progress allows to capture and process customer data in an unprecedented magnitude and depth. Taking this into account, the session papers offer a broad spectrum from a pre-modelling analysis to new deep learning approaches with advanced neural net architectures.

Peter Fader, Bruce Hardie, and Michael Ross introduce their "Customer-Base Audit" by taking a step back from the modelling process with an elaborated method for analysing customer data using the "Data Cube". The authors´ focus lies on understanding the past and present customer purchase patterns rather than predicting the customers´ future. The results give a fundamental insight into the underlying customer behaviour and can also be used to select appropriate stochastic models.

Lydia Simon and Jost Adler examine parameter estimation errors in their paper "Know your Limits: Estimation Errors and Data Sets Requirements for the Pareto/NBD Model". They perform a broad simulation study to quantify these errors and derive minimal data set requirements regarding the necessary cohort sizes and length of calibration periods.

The paper "Advanced Customer Base Analysis with R: The CLVTools Package" from Patrick Bachmann, Jeffrey Näf, Patrik Schilter, Markus Meierer, and René Algesheimer introduces several valuable features and enhancements for the toolbox of

probabilistic customer attrition models. These include the relaxation of assumptions, the inclusion of constraints and time varying covariates, or correlations between purchase and attrition process.

In their paper "Predicting customer future with autoregressive neural nets: From RFM to LSTM", Thomas Reutterer, Jan Valendin, Klaudius Kalcher, and Michael Platzer propose a model which belongs to a rather new approach to Customer Base Analysis using deep learning methods. It compares the predictive performance of a novel neural net architecture with those of probability models and a nonparametric approach.