

# Databased Segmentation of Advisory Clients in Banking

## Bachelor Thesis in Collaboration with Bank Vontobel AG

### Graduate



Neva Nann

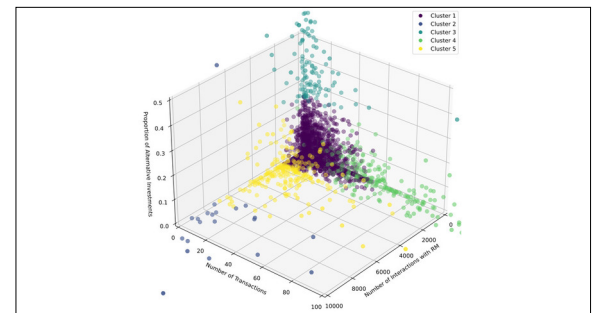
**Introduction:** Market segmentation means to split up the market into groups of similar characteristics which allows to focus on each group's preferences. Historically, most banks have segmented their clients based on demographic characteristics such as domicile and wealth. The problem with this approach is that the groups are not necessarily homogenous regarding their behaviour and preferences. The objective of this paper is to find ways to cluster the advisory clients based on behaviour related data. A better understanding about the demonstrated preferences, what features are worth consideration when designing new services, can help the bank continuously improve and adapt its offering.

**Approach:** The provided data is examined and aggregated on a useful level by feature engineering before a cluster analysis is conducted. Initially, the k-Means algorithm serves to determine the number of clusters using the Elbow method, as well as the Calinsky-Harabasz score, before being utilized for clustering. The resulting clusters from the k-Means clustering are compared with an agglomerative hierarchical clustering. Following that, the impact of different features is evaluated and the number is iteratively reduced, supported by a principal component analysis, to determine the main drivers. After completion, the clusters are interpreted and characterized, and finally compared to the traditional features.

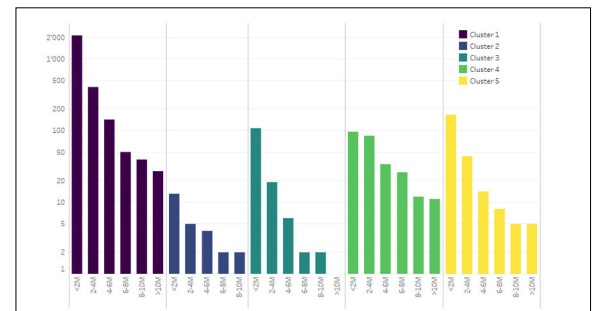
**Result:** After several iterations, five clusters are defined which are represented in the first image. They are further evaluated to compile a characterization. A comparison with traditional features shows that the clusters do not correspond to the age of the person behind the portfolio or the value of the assets held in

it. The latter is visualized in the second image. This leads to the conclusion that the traditional segmentation of clients falls short when it comes to preferences regarding contact frequency, number of transactions, etc. It is therefore recommended to consider these aspects in future product development for advisory clients to best adapt to the clients' predilections.

**Portfolios Colored by k-Means Cluster Membership**  
Own presentation

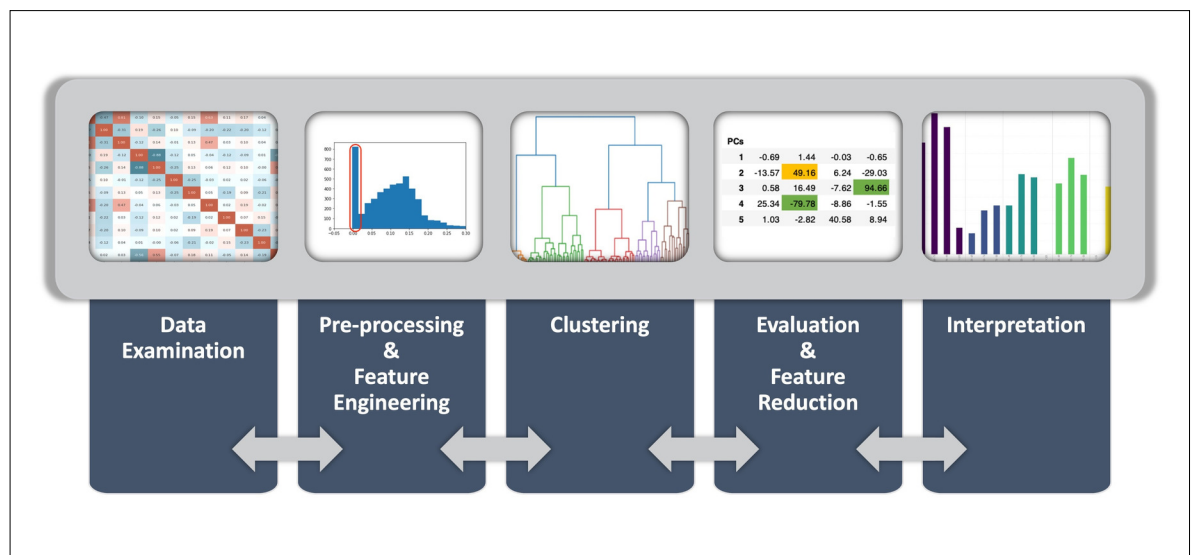


**Distribution within Clusters regarding Portfolio Value in CHF**  
Own presentation



### Approach

Own presentation



### Advisor

Prof. Dr. Lin Himmelmann

### Co-Examiner

Dr. Noelle Jufer, Dr. Acél & Partner AG, Zürich, ZH

### Subject Area

Product Management

### Project Partner

Bank Vontobel AG, Zürich, ZH