RFM (customer value)

RFM is a method used for analyzing customer value. It is commonly used in database marketing and direct marketing and has received particular attention in retail and professional services industries.[1]

RFM stands for the three dimensions:

- **R**ecency – *How recently did the customer purchase?*
- **F**requency – *How often do they purchase?*
- **M**onetary Value – *How much do they spend?*

Customer purchases may be represented by a table with columns for the customer name, date of purchase and purchase value. One approach to RFM is to assign a score for each dimension on a scale from 1 to 10. The maximum score represents the preferred behavior and a formula could be used to calculate the three scores for each customer. For example, a service-based business could use these calculations:

- Recency = the maximum of "10 – the number of months that have passed since the customer last purchased" and 1
- Frequency = the maximum of "the number of purchases by the customer in the last 12 months (with a limit of 10)" and 1
- Monetary = the highest value of all purchases by the customer expressed as a multiple of some benchmark value

Alternatively, categories can be defined for each attribute. For instance, Recency might be broken into three categories: customers with purchases within the last 90 days; between 91 and 365 days; and longer than 365 days. Such categories may be derived from business rules or using data mining techniques to find meaningful breaks.

Once each of the attributes has appropriate categories defined, segments are created from the intersection of the values. If there were three categories for each attribute, then the resulting matrix would have twenty-seven possible combinations (one well-known commercial approach uses five bins per attributes, which yields 125 segments). Companies may also decide to collapse certain subsegments, if the gradations appear too small to be useful. The resulting segments can be ordered from most valuable (highest recency, frequency, and value) to least valuable (lowest recency, frequency, and value). Identifying the most valuable RFM segments can capitalize on chance relationships in the data used for this analysis. For this reason, it is highly recommended that another set of data be used to validate the results of the RFM segmentation process. Advocates of this technique point out that it has the virtue of simplicity: no specialized statistical software is required, and the results are readily understood by business people. In the absence of other targeting techniques, it can provide a lift in response rates for promotions.

Variations

RFD – **Recency, Frequency, Duration** is a modified version of RFM analysis that can be used to analyze consumer behavior of viewership/readership/surfing oriented business products. (For example, amount of time spent by surfers on Wikipedia)

RFE – **Recency, Frequency, Engagement** is a broader version of the RFD analysis, where *Engagement* can be defined to include visit duration, pages per visit or other such metrics. It can be used to analyze consumer behavior of viewership/readership/surfing oriented business products. (For example, amount of time spent by surfers on Wikipedia)

RFM-I – **Recency, Frequency, Monetary Value – Interactions** is a version of RFM framework modified to account for recency and frequency of marketing interactions with the client (e.g. to control for possible deterring effects of very frequent advertising engagements).[2]

RFMTC – **Recency, Frequency, Monetary Value, Time, Churn rate** an augmented RFM model proposed by I-Cheng et al. (2009)[3]. The model utilizes Bernoulli sequence in probability theory and creates formulas that calculate the probability of a customer buying at the next promotional or marketing campaign. The model has been implemented[4] [5] by Alexandros Ioannidis for datasets such as the Blood Transfusion and CDNOW data sets.

References

1. Fader, P. S., Hardie, B. G., & Lee, K. L. (2005). RFM and CLV: Using iso-value curves for customer base analysis. Journal of Marketing Research, 42(4), 415-430.
2. Tkachenko, Yegor. Autonomous CRM Control via CLV Approximation with Deep Reinforcement Learning in Discrete and Continuous Action Space. (April 8, 2015). arXiv.org: https://arxiv.org/abs/1504.01840
3. Yeh, I-Cheng, Yang, King-Jang, and Ting, Tao-Ming, "Knowledge discovery on RFM model using Bernoulli sequence," Expert Systems with Applications, 2009.
4. "Contribute to it21208/RFMTC-Implementation-Using-the-CDNOW-dataset development by creating an account on GitHub" (https://github.com/it21208/RFMTC-Implementation-Using-the-CDNOW-dataset). 2018-12-17.
5. "RFMTC (New Marketing Predictive Model / Bernoulli Sequence) Using the Blood Transfusion Dataset: It21208/RFMTC-Using-the-Blood-Transfusion-Dataset" (https://github.com/it21208/RFMTC-Using-the-Blood-Transfusion-Dataset). 2018-12-17.

External links

- Intro Guide to the RFM Model (https://canopylabs.com/resources/an-introduction-to-the-rfm-model)
- Using RFM to Identify Your Best Customers (http://www.eightleaves.com/2011/01/using-rfm-to-identify-your-best-customers/)
- Making Your Database Pay Off Using Recency Frequency and Monetary Analysis (http://www.dbmarketing.com/2010/03/making-your-database-pay-off-using-recency-frequency-and-monetary-analysis/)
- R Implementation of RFM (https://www.youtube.com/watch?v=SojqDzHpKRA)