The Use of Predictive Modelling in Customer Relationship Management

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1. Why predictive modelling in Customer Relationship Management?
2. How to predict customer behaviour?
3. What works and what does not work?
4. What is it good for?
Customer relationship management (CRM) is an approach to manage a company's interaction with current and potential customers. It uses data analysis about customers' history with a company to improve business relationships with customers, specifically focusing on customer retention and ultimately driving sales growth. (https://en.wikipedia.org/wiki/Customer_relationship_management)

Predictive modelling uses statistics to predict outcomes. Most often the event one wants to predict is in the future, but predictive modelling can be applied to any type of unknown event, regardless of when it occurred. (https://en.wikipedia.org/wiki/Predictive_modelling)

→ Predictive modelling in CRM can be used to predict future customers’ behaviour (e.g. contract termination / churn, purchases) based on historical customer data.
What shall be predicted?

Goal: Identification of customers who are likely to buy a product or to terminate the contract (i.e. who are likely to act).

- All customers
  - Likely to act

- Model

- Predicted not likely to act
  - Customers (Subsample)

- Predicted likely to act
  - Customers (Subsample)
What do we know about our customers?

<table>
<thead>
<tr>
<th>Basic and contact data</th>
<th>Contract data</th>
<th>Revenue and payment data</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Basic data: Gender/form of address, postal address, title (if any), age, municipality, …</td>
<td>• Number of products, frequency of purchases, date of last purchase, time since last purchase, number of contract prolongations, duration of customer relationship, …</td>
<td>• Average value of a purchase, value range of purchases, monthly revenues, payment defaults, basic fee, usage dependent fee, …</td>
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<tr>
<td>• Contact data: Frequency of contacts, complaints, questions, …</td>
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</tbody>
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Do we know more about our customers?

Neighbourhood effects
- Does a customer live in an area where there are many payment defaults?
- Does a customer live in an area where there are ordered many high value products?
- …

Contacts and products
- Are there many complaints of customers with high value products?
- Do longtime customers have lower service needs?
- …

External data
- There are many data available on a regional basis such as purchasing power, income, inhabitant structure of an area, …
How to include different periods of time?

Model development
- today-x-1
- today-x
- ...x...
- today-1
- today
- ...x’...
- today+x’

Model development
- Customer data
- Purchase / Contract termination

Model validation
- Customer data
- Purchase / Contract termination

Prediction
- Customer data
- Predicted likely to act

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How does the modelling process work?

Customer data + Purchase / contract termination → statistical Modelling → Several prediction models

To be applied on

New data: Customer data → Several predictions + Validated with New data: Purchase / contract termination → Use the model which fits best to most recent purchases / contract terminations
The basic idea is to find some customers who are similar to customers who already bought a product or terminated their contract, based on actual customer data.

Data

- Age
- Gender
- Number of products
- Time since last purchase
- Monthly revenue
- ...

Acted in the past

Haven’t acted so far
Is it possible to exactly predict which customer will act and which will not?

No! But it is possible to find a customer group which contains much more customers who will act compared to a completely random customer group.

What works and what does not?
What works and what does not?

Do I at least get all customers who will act?

No! Customers willing to act who are not similar to buyers or contract terminators in the past cannot be predicted.
So what is it good for?

Three use cases

- Increase revenues
- Reduce total campaign costs
- Product prioritisation