

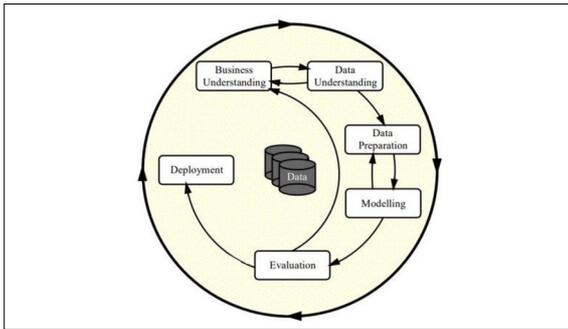
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Subject Area	Technologiemanagement
Project Partner	Oerlikon Balzers Coating AG, Balzers, Fürstentum Liechtenstein FL



Philipp Belinger

Implementation and validation of a cost prediction tool

New cost request process based on data mining



Cross Industry Standard Process for Data Mining (CRISP-DM)
Source: Rüdiger Wirth, 2000



Overview of not-used data records
Own presentation



Calculation of the cost deviation for the plausibility check
Own presentation

Problem: In order to create competitive advantages in the market, the procurement team at Oerlikon Balzers is increasingly required to have production costs of new fixtures in less than 3 days. Therefore, a project was launched to predict product costs by analysing CAD models. This approach is based on data mining technology and a possible software solution was identified. The aim of the bachelor thesis was to start and evaluate a pilot project for Oerlikon Balzers.

Approach: The project was set up based on a standardized process for data mining projects. To get an overview of the available data for cost predictions, data was extracted and summarized from several data sources. Afterwards, the data was investigated and prepared based on predefined criteria for a qualitative data set. This included reformatting the data set, adding new attributes and sorting out bad data records. Later, the data records had to be divided into different clusters to define the correct data models and to get an idea whether the data volume is sufficient or not.

In a next step, the software solution was tested in a plausibility check to examine the quality of the prediction. By using the software in a field test, benefits, necessary user qualifications and required resources for the deployment were evaluated. The aspects found influenced the final quality assessment.

Conclusion: The result of the bachelor thesis is the realization of a use case in which product costs were predicted using CAD data. Comparing the predicted costs to real offers shows a satisfying accuracy of the prediction tool for small order quantities. If the desired prediction quality can be achieved for further assemblies – as is to be expected - and the precision can be improved also for predictions with higher order quantities, the implementation of the cost prediction tool brings cost advantages and can give a competitive advantage by processing customer requests faster. The use case shows that data quality existing in the organization is in a good condition and contains all required information for an accurate use in the cost prediction tool. However, Oerlikon Balzers has not yet defined the process for generating data, which leads to a high effort in terms of data preparation. Also, due to missing data, not all products can be predicted at the moment. Based on these findings and the quality assessment that has been carried out, the bachelor thesis contains a list of recommendations for Oerlikon Balzers to increase the efficiency of the data acquisition process and to improve the prediction quality.