Product quality is one of the crucial factors influencing customer satisfaction and loyalty, and of course, a company’s reputation in general. A high quantity of non-conforming products increases risks and costs of production. For certain types of products, it is difficult to measure quality during production, therefore it is assessed afterwards in a laboratory. We propose to determine the relationship between process and quality parameters. The identified process parameters can then be used in future to estimate and predict quality. In this paper we present a method to develop a Cause-Effect Graph (CEG) based on expert knowledge (qualitative part) to provide visualization of the causes and effects to support machine operators. To validate the CEG we used data mining methods (quantitative part). We apply our approach to an industrial use case (stretch film production), collecting the expert knowledge through interviews and card-sorting techniques, and performing a logistic regression and decision tree analysis in the data-mining part. The validity of the proposed method is proven for continuous technical processes with certain important criteria of classification, e.g. availability of process variables, their amount, relationship between process and quality relevant variables. Thus, the main contribution of this paper is presented by the matching of experts’ knowledge with results of data mining in order to improve the production process understanding and visual support of causes and effects of production.
process for operators.