

## **Preface**

The work was carried out by the initiation of the author as production manager of a finger jointed component factory in company Barrus AS. The assisting information and guidance was provided by Director of Manufacturing Andres Linnasaar.

Manufacturing finger jointed components consists of several steps that are all dependent on the specifics of timber dimensions, quality classifications and client requirements. To comprehend all the major factors related to finger joint manufacturing a model is created to analyze the relevant key performance indicators for batches of sawn timber. As raw material is by far the highest cost in timber manufacturing the main emphasize is on using the timber scanner data of different simulation to be inserted into the production model created resulting key performance indicators for further evaluation.

The resulting data is further analyzed using regression model to predicts the most important independent values of timber scanner settings and batch properties. The resulting conclusions and models can be applied to the whole portfolio to increase the profitability, turnover or other KPIs dependent on what is the sales market and production plan situation.

Further testing of different products, qualities and raw material variations can improve understanding the effects of specific independent value on depended KPI values.

Key words: finger joint ; timber ; wood optimization ; manufacturing model ; simulation ; master thesis