A contribution to benchmarking of planning algorithms and to production planning and control for multi-level order related series production in the autombile supplier industry.

The first part of this thesis concentrates on the development of a methodology for the objective comparison of planning algorithms for a variety of production problems. For that purpose the production problem, the simulation of the production process and planning algorithms were separated.

The second part of this thesis focuses on the problem that companies in the automobile supplier industry must be able to adjust to a fluctuating demand of their customers, among others Volkswagen, by being flexible enough to always deliver in time at minimal costs. Therefore, planning strategies were developed and a contribution to the production planning and control process as well as for the production planning and control process under uncertainty was made.