Decision Support Systems for Automated Modelling and Simulation of Cut-to-size Plants

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Planning, implementation and operation of cut-to-size plants are very costly and time-consuming processes. Due to parallel material movements, various possible combinations of the plant building blocks and because each plant is designed as a complete, customized system, the complexity of the plants can be enormous. For these reasons, a decision support system based on discrete event simulation has been developed, which allows the producer of the plants to model, emulate, simulate and animate the plant processes. This allows the system experts to make exact forecasts of the attainable performance. In this paper we describe the development of this decision support system, regarding system architecture, processing of control system orders and task handling in the simulation environment. Finally, based on the findings of the realization and validation of the tool, this paper discusses the opportunities arising from this approach as well as its future potential.