

## Application area **Production**



### Planning and optimisation in production

Production processes grow ever more complex and dynamic with the increasing process integration that starts in production itself and reaches all the way to the customer. This leads to new and recurring tasks in the planning and optimisation of resources and processes. At this juncture, static optimization methods and calculations based on average values start to fail.

The solution is to use dynamic simulation, which is able to depict the complexity and dynamism of production realistically. Simulation brings an unprecedented level of transparency to your production processes, because a simulation model shows cause-and-effect relationships very clearly.

This way, bottlenecks can be analysed quickly and efficiently, and optimization measures can be derived, which then can be tested in the simulation model completely without risk. This safeguards your investment in machines and resources and is more effective than classical investment budgeting that is only aimed at local optimization.

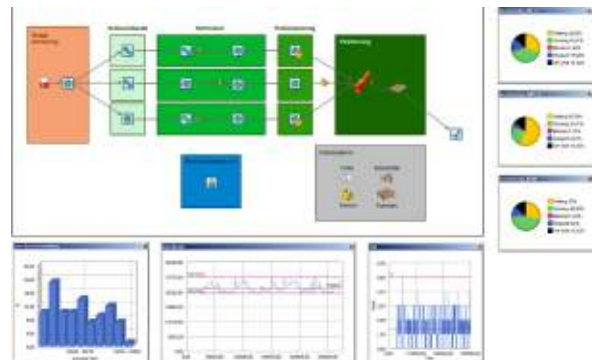
### Dynamic and complexity

The use of simulation in production can range from mapping single for the dimensioning of production resources and buffer sizes to the modeling of entire production plants. This also includes simulating intra-logistics systems to determine the optimal size of logistics areas and the ideal means of transportation within the production system.

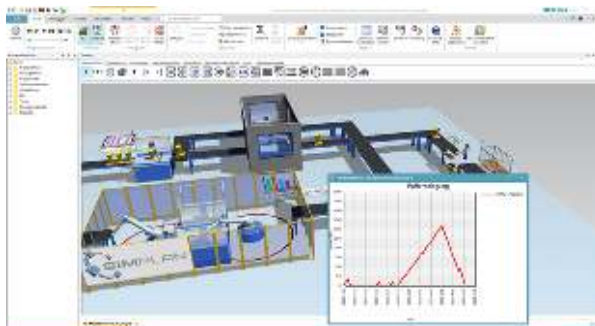
By analysing the entire production process, simulation takes both complexity and dynamism into consideration. Dynamism is caused for example by machine malfunctions, variability of cycle times in manual processes or by resource bottlenecks.

### Input data for simulation

- Layout, e.g. of the production line
- Product data (parts lists, variants, cycle times)
- Machining times
- Setup times
- Rework and reject rate
- Downtime of machines (availability)
- Shift plans
- Employees (incl. qualifications)



Model of an interlinked production plant



Model of a production line

### Results of simulation

- Visualization of processes
- Capacity analysis for evaluation of bottlenecks
- Total throughput of plants (incl. malfunctions, reworking rejections, etc.)
- Real total availability of plants
- Goods in buffers and in stock
- Plant utilization (machines, buffers, materials handling, employees)
- Staff requirements for multi-machine-operation

## Aims and benefits

- Improvement and reduction of facility planning times
- Increase of process quality, as bottlenecks are identified already in the planning phase and can be eliminated with suitable measures
- Optimisation of plant components under realistic conditions
- Optimisation of buffer design to decouple plants and increase throughput and total availability
- Riskless analysis of improvement strategies

### SimPlan group

We consider ourselves to be a cross-sector full-range supplier with regard to simulation, accompanying you with extensive know-how, experience and modern methods in the optimisation of business processes.

Our services range from process analysis and consulting through material flow and logistics simulation, simulation-based detailed production planning to support with the commissioning of control software.

Furthermore we are a neutral distributor of simulation software and we will lend you our support with the selection, training and implementation in your company.

### Why SimPlan?

- Objective and independent analysis
- Detailed knowledge of logistics and production processes with over 30 years project experience
  - Development and use of standards
  - Continuous development of simulation topics through research and development
- Excellent resources for prompt response to your queries
- Close cooperation and project integration with high on-site quota
- Development of innovative solutions, efficiently solving challenges during project work

## Where to find us

### SimPlan Group

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