

# Material flow planning in times of Industrie 4.0

Will digital planning solutions replace gazing into the crystal ball?

## How do we describe the concept?

Increasing competition and cost pressure require the continuous optimization of products as well as their manufacturing and logistics processes. In order to be able to reduce not just production costs but planning time and effort as well, production systems and processes must become more flexible. The consequences are often an increase in complexity and a greater degree of automation.

A number of influencing factors such as the shift system, the layout, the production program and disruptions have an impact on key figures such as capacity utilization, productivity, throughput time and availability.

Using modern simulation tools, complex and especially dynamic production and logistics processes can be modelled, visualized and evaluated in order to secure your investments and business decisions with the aid of a computer.

## What are the advantages?

Using a simulation, you can analyze and optimize material flow, resource utilization, and logistics for all planning stages of a plant, from global production sites to local factories to individual lines.

The digital model allows you to run experiments and what-if scenarios without affecting the operation of existing production systems.

In addition, alternative concepts or complex/autonomous control systems (an important element of Industry 4.0) can be compared virtually and transparently during planning and evaluated more easily, even without an existent production system. The use of virtual reality technology also promotes an understanding of the processes and the model.

## How do we answer these questions? Our approach

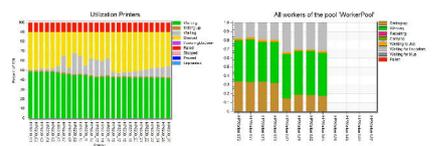
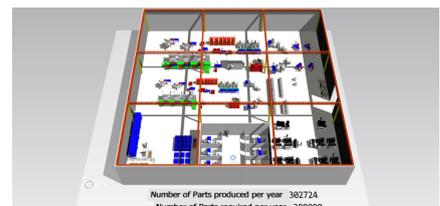
Our experienced team of consultants has been involved for many years in different industries in the planning and optimization of factories and their material flows, production processes and logistics processes using digital tools such as *Plant Simulation* by Tecnomatix.

Our experts will support you in preparing, conducting and evaluating material flow simulation studies using a proven methodology:

- In the preparation phase, we formulate and analyze the problem together with you, developing the questions, defining the tasks and goals, determining the necessary data, and preparing and coordinating that data in order to be able to create the simulation model as a next step.
- The execution phase includes the simulation runs, the so-called experiments for the previously defined scenarios.

- In the evaluation phase we analyze and evaluate the simulation results with you regarding their level of conformity with planning and reality.

Based on the results, we assist you after the simulation study by jointly deriving possible areas for action and optimization potential, evaluating them and creating a roadmap for sustainable implementation.



**Siemens IoT Services**  
Siemens Management Consulting (SMC)  
Operations

Martin Schönfelder  
Principal Production & Logistics  
operations-consulting.internet-of-  
things@siemens.com