

Changing production requirements are handled easily with digital factory software



Continental AG

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Continental AG, commonly known as Continental or Conti, is a leading German automotive manufacturing company specializing in tires, brake systems, automotive safety, powertrain and chassis components, tachographs, and other parts for the automotive and transportation industries. Continental is based in Hanover, Lower Saxony, Germany. Continental is the world's 4th largest tire manufacturer. Continental was founded in 1871 as a rubber manufacturer, Continental-Caoutchouc und Gutta-Percha Compagnie.

The purpose of this study was to achieve a greater manufacturing flexibility and to optimize material flows during situations of frequent product alterations and quantity changes. As a result, digital material flow simulation allowed to acquire these objectives by making what-if simulations to compare alternate production line scenarios.

Simulation and Forecasting Technology role

Greater manufacturing flexibility, optimize material flows, digital material flow simulation, what-if simulations.

Sector
Automotive

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SIEMENS

Tecnomatix

Continental Automotive Group

Changing production requirements are handled easily with digital factory software

Industry
Automotive and transportation

Business challenges
Frequent product alterations and quantity changes
Many production line adjustments

Keys to success
Digital material flow simulation
What-if simulations to compare alternate production line scenarios

Results
Problems identified and resolved faster
Greater manufacturing flexibility
Higher output and less waste
Optimized material flows
Investment decisions validated

Tecnomatix Plant Simulation models give planners more flexibility; material flow simulation also increases output and reduces waste

Making driving safe and comfortable Continental Automotive GmbH is one of the leading automotive suppliers in the world. The company's three divisions – Chassis & Safety, Powertrain and Interior – develop and manufacture products that make driving safer (air bags and sensors, brake and chassis control systems), more fuel efficient (gasoline and diesel injection systems) and more fun (infotainment systems and multifunctional displays).

The company's Regensburg, Germany facility is its biggest electronics plant. In an area of 16,500 square meters (approximately 177,000 square feet), nearly 2,000 employees produce about 67 million electronic devices per year. The plant operates 24/7, running 22 lines for surface-mounted devices (SMD), along with other product-specific assembly and inspection lines.

The company's different business units demand quite a lot from the manufacturing planners at the Regensburg plant. Frequent product alterations as well as quantity changes require repeated production line adjustments. To support

the planners in this complex effort, the plant established an internal consulting agency, called the "Lean Office" that provides the business units with an expert production infrastructure and manufacturing expertise. "We offer our customers the individual business units, a kind of care-free package for the manufacturing of their products," says Dr. Markus Fischer, head of industrial engineering at Continental Regensburg.

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"The possibilities of a simulation are really great for reducing costs," Stefan Lamken, former Chief Executive, Continental Automotive Group, says.

problems are easily fixed," explains Stefan Lamken, a process consultant to the Lean Office and key user of Tecnomatix.

Normally at Regensburg Plant, the manufacturing planners design lines with precise and successive processing stations. In this context, a simulation model is used to verify the planned performance of the line. "For our planners, Tecnomatix Plant Simulation is a very interesting tool," says Fischer. "The offline simulation shows solutions that sometimes surprise even the most experienced colleagues." For example, a multi-product line with up to 100 variants did not reach the theoretical targeted output. An unforeseen bottleneck unbalanced the material flow. The Tecnomatix simulation showed that a processing station was operating too quickly, causing jams at subsequent stations. The unexpected solution – slowing down the cycle for that particular station – would have been discovered much later had the simulation not been used.

Supporting sound financial decisions In another situation, the goal was to increase the output of a production line. Manufacturing planners developed four possible scenarios, noting the cost of each possibility. By evaluating the four alternative lines using Tecnomatix simulations, the company was able to see that the most economical approach would meet the desired goal. "We were aided with the software," recalls Lamken. "With it, we