

## Electronics and semiconductor

# Zollner Elektronik

## Lean process planning for lean production

### Product

Tecnomatix

### Business challenges

- Optimize resources
- Reduce investment risks
- Increase customer responsiveness and flexibility
- Increase production efficiency and reduce costs
- Shorten launch times and improve time-to-market
- Strengthen unique selling proposition

### Keys to success

- Digital manufacturing tools for material flow simulation and installation layouts
- Lean management approach stringently implemented
- Establishment of best practice libraries
- Intensified process planning

### Results

- Significantly more effective process planning
- Cycle time, work in progress and stock significantly reduced
- Substantially shorter project turnaround



### Zollner leverages digital manufacturing tools of Tecnomatix to accelerate process planning and win new customers

#### Faster, more precise and more flexible production planning identified as top priority

Zollner is one of the world's top 15 Electronic Manufacturing Services (EMS) providers. Headquartered in Zandt, Germany, with about 6,500 employees at 15 locations worldwide, the contract manufacturer produces parts, modules, devices and complete system solutions across a wide range of industries, including automotive, aviation, medical devices, industrial and office electronics, measurement, telecommunications and consumer products.

In contrast to other providers, Zollner doesn't have its own product line, but rather provides manufacturing services. Zollner's service range comprises the complete product lifecycle from development to supply chain management and from production to after-sales services.

Zollner's business strategy focuses on holistic consulting, high customer involvement and the realization of individual and complex system solutions that are delivered according to the highest quality standards. The company's continued investment in its wide variety of process and technology know-how enables its success.

Zollner performs about 3,000 manufacturing rampups per year for about 600 customers. Batch sizes begin at one, are open

## Results (continued)

Higher on-time delivery

Compelling simulations  
instilling customer confidence

Winning new business

to the top and are designed according to the manufacturing cycle of the customers. Market fluctuations can be significant, with quantities for solutions varying substantially by project and industry. With an acute sense of the industry drivers, Zollner organizes its own manufacturing capacities in a complex pull principle that effectively anticipates batch size demand.

Particularly demanding are the requirements to continuously accelerate time-to-market and to arrange highly flexible production planning. "We have to fully manage a wide variety of industries, products and batch sizes," says Roland Heigl, manager for production process planning at Zollner. "Nowadays the market determines prices and delivery dates. Hence, the way there is crucial. We need tools that make us faster, more precise and more flexible through standards."

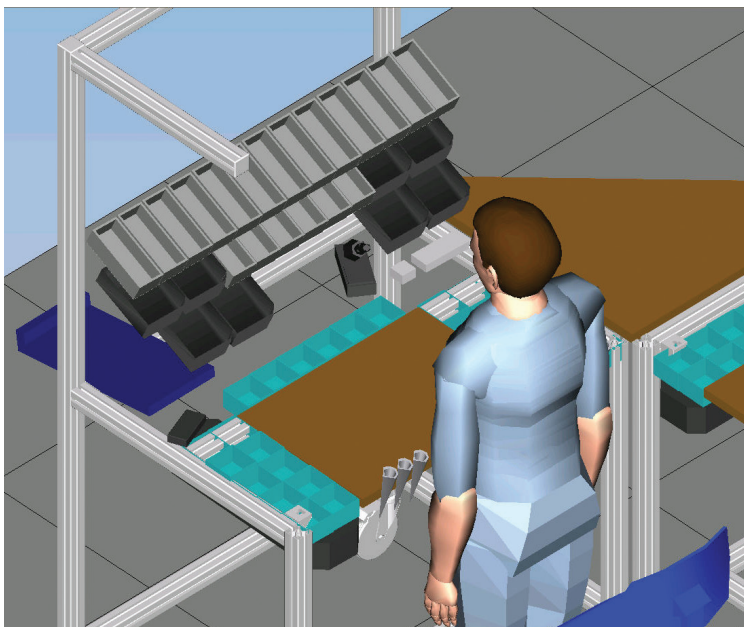
### **Ambitious pilot project illustrates the advantages of Tecnomatix**

Since 2002, Zollner's process planners have used systems for material flow simulation. These systems were later complemented with tools for three-dimensional visualized ergonomics studies and layout

plans. However, growing customer requirements and Zollner's desire for a stronger focus on full system manufacturing called for implementing an integrated solution – one capable of handling increasingly more information. Zollner sought capabilities that enabled flexible planning, analysis and management of manufacturing processes for complete lines. In addition, Zollner wanted a solution that would not only support, but also intensify its lean management approach.

To meet its requirements, Zollner established a benchmark project in which the production processes of an existing product were validated within a live test that lasted several months. Siemens Tecnomatix® software was the test system that proved its worth. "Before investments, we always audit very accurately to ensure that all of our requirements are covered," says Alois Mahr, manager of digital planning at Zollner. He notes, "Tecnomatix passed this test with flying colors."

Zollner then set up an ambitious pilot project to thoroughly assess the benefits of the digital factory and to completely adjust the system to the requirements. Using the



**“Tecnomatix  
passed this test  
with flying  
colors.”**

Alois Mahr  
Manager  
Digital Planning  
Zollner

digital factory tools of Tecnomatix, a new production line was defined, planned, optimized and realized without any flaws utilizing Zollner's pull principle and lean management requirements. The customer's product – a complex electronic device that consists of 1,200 components – was still under development, so the process planners had to consider ongoing modifications. Planning proposals included the complete elimination of unnecessary supplies, a continuous flow production environment with flexible standing workstations and material loading using supplier logistics personnel.

Project goals included eliminating disadvantages like pre-assembly stations, unneeded deposit places, inflexible sedentary workstations and high stocks. "It quickly became apparent that a holistic approach to the planning process was needed to make the goals reality," says Heigl. "The product, with its ongoing technical modifications, new process

specifications, stringent quality requirements and tight deadline, provided the perfect complex conditions to max out the performance of the digital manufacturing environment. The result is comprehensively convincing. In fact, we were able to retroactively implement the findings into product design and process optimization."

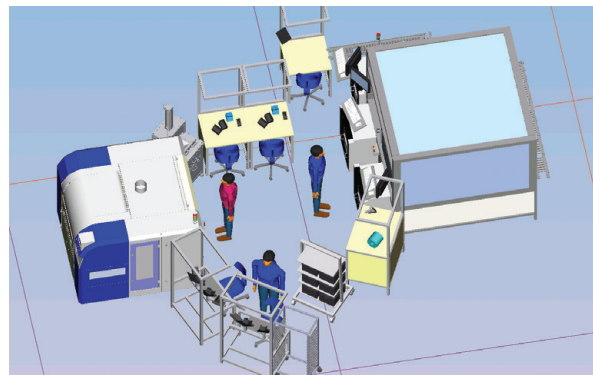
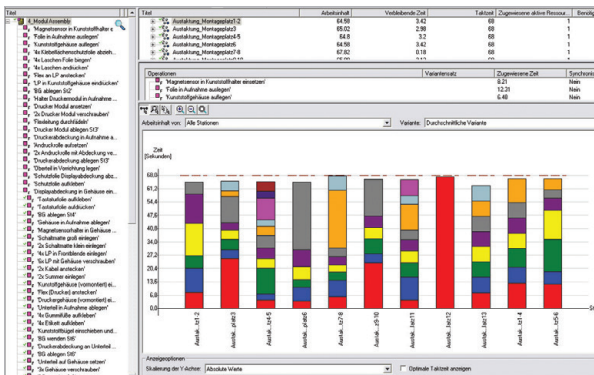
### Lean management requirements achieved

The next step was to precisely quantify the increased benefits and degree of optimization that the digital manufacturing tools delivered. Therefore, the process planners used the operating figures of the pilot project and made a comparison to the benchmark project.

"Using Tecnomatix, we achieved an exceptionally accurate realization of the continuous flow production, one-piece flow concept and optimized material link," says Mahr. "The direct result of that achievement was a significant reduction in

"Using Tecnomatix, we achieved an exceptionally accurate realization of the continuous flow production, one-piece flow concept and optimized material link. The direct result of that achievement was a significant reduction in cycle time, work-in-progress and stocks. We realized the objective of our lean management approach – avoiding as much waste as possible."

Alois Mahr  
Manager  
Digital Planning  
Zollner



"Using Tecnomatix, we achieved an exceptionally accurate realization of the continuous flow production..."

Alois Mahr  
Manager  
Digital Planning  
Zollner

# “Ultimately, it’s about providing the best value to customers.”

Roland Heigl  
Manager  
Production Process Planning  
Zollner

cycle time, work-in-progress and stocks. We realized the objective of our lean management approach – avoiding as much waste as possible.” Zollner also gained a significant monetary benefit through the successful use of Tecnomatix software in the pilot project as well as for the optimization of several smaller, already existing production processes during this same timeframe.

Using a deliberate evolutionary approach, the digital manufacturing team at Zollner headquarters is now training the worldwide network of 50 process planners to fully leverage Tecnomatix. In doing so, the proven benefits of Tecnomatix deployment will be realized across all production locations.

## Standardization creates even more value for customers

Besides production line efficiency, Zollner is improving the quality of other crucial services for its customers. In every new planning project, the company’s complete expertise is employed so as to fully leverage the standardization opportunities inherent in Tecnomatix, including the creation of best practice libraries for easy and economical re-use.

As Zollner rolls out Tecnomatix across the organization, it continues to shorten its learning curve. Projects are accelerated and are achieving top-level quality. Calculation of customers’ cycle times, methods-time measurement and line balancing are done more precisely with less effort. Multiple concepts are compared and validated. Advantages are readily identified and brought together. Flaws are identified and eliminated in the planning phase of the virtual installation. The subsequent configuration and realization of the actual installation are accelerated. Time- and cost-consuming corrections and launching delays are omitted.



## Solutions/Services

Tecnomatix

[www.siemens.com/tecnomatix](http://www.siemens.com/tecnomatix)

## Customer's primary business

Zollner is one of the world's top 15 Electronic Manufacturing Services (EMS) providers. With about 6,500 employees at 15 locations worldwide, the contract manufacturer produces parts, modules, devices and complete system solutions across a wide range of industries, including automotive, aviation, medical devices, industrial and office electronics, measurement, telecommunications and consumer products. [www.zollner.de](http://www.zollner.de)

## Customer location

Zandt  
Germany

From a big-picture perspective, using Tecnomatix, Zollner not only realizes cost savings for its customers, but also delivers more precise planning significantly faster. Overall investment risks are examined early on and minimized. Deadlines are duly met. "Ultimately, it's about providing the best value to customers," says Heigl.

## Presimulation instills customer confidence; wins business

Zollner is leveraging Tecnomatix software's comprehensive knowledge about planning details, including for proposal preparations. With a three-dimensional simulation of a complete production line, Heigl notes that it is possible to convincingly persuade new customers about the best alternatives.

"Even before commissioning, customers receive in-depth information about potential realization, and they can choose the ideal model out of various variants and concepts," says Heigl. "So, they are able to decide on other criteria besides just costs and to reduce investment risks. Complete transparency increases consulting quality. Openness and precision provide confidence."

For example, in winning a strategically important bid, during tendering, Zollner was able to outdistance its competitors with a compelling presimulation of the project. Decisions were in-depth and complete feasibility could be assured. "The possibilities of the digital manufacturing environment turned the balance," say Heigl. "They convinced the customer that we are just the right partner."

**"The possibilities of the digital manufacturing environment turned the balance for an important bid. They convinced the customer that we are just the right partner."**

Roland Heigl  
Manager  
Production Process Planning  
Zollner

## Siemens Industry Software

Americas +1 314 264 8499  
Europe +44 (0) 1276 413200  
Asia-Pacific +852 2230 3308

[www.siemens.com/plm](http://www.siemens.com/plm)

© 2014 Siemens Product Lifecycle Management Software Inc. Siemens and the Siemens logo are registered trademarks of Siemens AG. D-Cubed, Femap, Geolus, GO PLM, I-deas, JT, NX, Parasolid, Solid Edge, Teamcenter and Tecnomatix are trademarks or registered trademarks of Siemens Product Lifecycle Management Software Inc. or its subsidiaries in the United States and in other countries. All other logos, trademarks, registered trademarks or service marks used herein are the property of their respective holders.  
Z7 20817 2/14 A