

## Machinery

# Plakoni

Complex production processes demand digital manufacturing

### Products

Tecnomatix, NX

### Business initiatives

New product development  
Production efficiency

### Business challenges

Increasingly complex  
production facilities  
Shorter production rampups  
required to support today's  
shorter product lifecycles

### Keys to success

Computer simulations using  
Plant Simulation, FactoryCAD,  
Robcad, Process Designer and  
Process Simulate to optimize  
manufacturing processes

NX I-deas software  
geometry used as the basis  
for simulations

Digital feasibility studies

### Results

Greater innovation in  
production process design

Shorter time to volume  
production despite  
increased complexity

More effective sales  
presentations



### Tecnomatix solutions help bring new and revamped production lines online faster

#### Engineering and projects

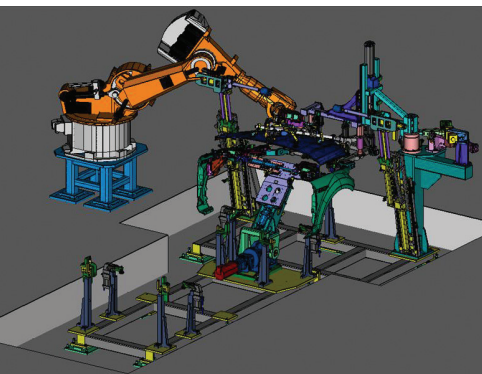
Products today have an ever-shorter lifecycle, with more modifications and replacement products as a result. Due to the shorter lifecycle, production efficiency is becoming even more important. These factors have forced changes in production processes and tooling – an area where

Plakoni has achieved success by using the newest design tools.

Plakoni Engineering was established in 1994 in response to increasing demand for tooling development for, at that time, an important new car production line. Over the years, the company's work has expanded. That applies both to projects in which Plakoni's engineers make up part of a customer's development team as well as to turnkey projects. "Due to the large increase in turnkey projects, we have started to highlight the division between

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engineering services and turnkey projects in our company’s development,” says Geert Kenis, manager and owner of Plakoni. “The availability of our experts in customers’ teams is of such importance to them that we are continuing that line of work as Plakoni Engineering. We also want to separately profile our expertise in the development, production and installation of turnkey production automation projects. Since the start of 2008, we have been doing that under the name Plakoni Projects.”

The two companies are of equal size with approximately 15 employees. To satisfy its desire for local availability, Plakoni has two branches in Belgium, in Genk and Sint Niklaas. “We chose these locations because 70 percent of our work comes from the automobile sector, in which a local presence is an important factor,” Kenis explains. “We also opened an office in Romania at a new factory of one of our larger customers to establish a local presence there.”

Besides working for the automobile industry, Plakoni carries out a large variety of projects, including work for the

dredging industry. For example, Plakoni developed a robot installation for changing the teeth of drill heads. “The original request was to support manual removal but an analysis of the situation and the fact that the teeth of drill heads were always becoming larger and heavier led us to automate the entire process,” Kenis says. “Ultimately, that was the most cost-effective solution.”

#### Shortening ramp-up

Plakoni Projects’ expertise lies in creating production automation concepts that respond to customers’ needs, and then executing those concepts. “The current trend is that the production process increasingly has to be adapted,” says Kenis. “As a result, increasing pressure is being placed on the development of production processes and the corresponding tooling. This not only means that the designs of the production facilities must be of high quality, but also that the ramp-up to production must be shorter.”

For Plakoni Projects, the development of a production facility nearly always starts with a functional demand from the



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customer. “In addition to production adaptations, manpower reduction and new production technology are the most common reasons why a line has to be converted,” says Kenis. “Based on the customer’s existing process, we develop a design that is eventually approved after discussion and any adaptations. Currently, we use the Tecnomatix® solutions – Plant Simulation, FactoryCAD™, Robcad™, Process Designer and Process Simulate – a great deal in the development of the design. These applications have extensive libraries with standard tooling components to model the production process.”

Using a digital manufacturing approach, Plakoni is rapidly able to model a cell with, for example, five robots along with supply and transport equipment. “Even though we had already used a great deal of 3D information with our customers, FactoryCAD is especially strong because of its efficiency in modeling and simulating production operations. This is not only helpful for internal use, but is especially interesting from the sales perspective as well,” Kenis adds.

## Feasibility studies

Ford and its subcontractors represent an important customer group for Plakoni. Consequently, the company has used the NX™ I-deas™ CAD solution from Siemens PLM Software for more than ten years as the standard for product development. “The advantage is that I-deas geometry can be used directly in Robcad and FactoryCAD,” Kenis notes. “That also applies to Fides, Ford’s own application for tooling development.”

I-deas product geometry is used directly in Robcad to perform feasibility studies. Plakoni engineers research, among other things, the capacities of robots in order to determine how many are needed in a production cell and which assembly is most efficient. “The development of mechanical components takes place using the program requested by the customer, such as I-deas or Fides,” Kenis explains. “Ford’s complete tooling was set up with Fides, which has an up-to-date library where all production resources are available as standard components.”

When the design is ready, it is loaded from Fides or I-deas into FactoryCAD and the process is visualized and evaluated in 3D. Based on this, the customer eventually gives approval. Drawings and 3D models are then sent to Plakoni’s subcontractors who handle the production of components and systems. Plakoni uses established partners for the development of electro-mechanical systems and software. All produced components, robots and other production resources are assembled by Plakoni.

“The use of Robcad for carrying out feasibility studies is extremely successful,” says Kenis. “Robcad’s offline programming and simulation capabilities are a requirement for attaining near real-world synchronization of cycle times in complex production cells.” If the production cell is relatively simple, the costs of the trademarked robot controllers then have a large influence on the cost-to-benefit calculation. “In particular, fine-tuning or

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### Solutions/Services

Tecnomatix  
[www.siemens.com/tecnomatix](http://www.siemens.com/tecnomatix)  
NX I-deas  
[www.siemens.com/nx](http://www.siemens.com/nx)

### Customer's primary business

Plakoni offers production engineering services and also develops and installs turnkey production processes.  
[www.plakoni.be](http://www.plakoni.be)

### Customer location

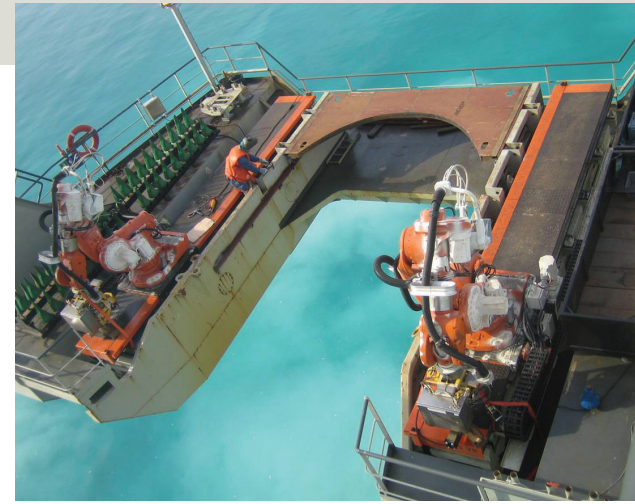
Genk and Sint Niklaas  
Belgium  
Craiova  
Romania

'tweaking' of the final program is still a requirement due to small differences between the virtual model and the final cell configuration," he notes. "For simple production cells, it may be more cost-effective to do the programming manually."

### Complete factories

When a complete project has been built and installed by Plakoni, it must then be accepted by the customer, after which the production cell is installed on site. Because Plakoni is the designer and builder, they are obligated to provide a complete product file with the installation. Both the programs and the drawings of the installation are contained in this file.

"Because we have extensive knowledge of our customer's business based on longstanding relationships, we are not concerned that our customers would use our deliverables to contract another service provider," Kenis adds. "We continue to build that relationship further thanks to modern software such as FactoryCAD and Robcad, which provide us with both commercial and technical advantages. In fact,



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Kenis expects to expand the use of digital manufacturing to include modeling and simulating complete factories and their flow of goods. "We parallel our customers' practices, such as in the use of the Tecnomatix Plant Simulation discrete event simulation solution," he says. "With Plant Simulation our engineers can optimize dynamic production and logistic processes for our customers. This will allow us to offer our customers an even better-suited service."

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