

Tecnomatix • NX

Eicher Engineering Solutions

Designing better factories, virtually

Industry

Automotive

Business initiatives

Production efficiency

Business challenges

Compete for business with in-house experience

Justify the cost of production planning services

Keys to success

Broad-based plant design and optimization solution

3D virtual factory models

Support from Siemens in India

Results

Benefits to clients include:

30-35 percent increase in the utilization of space

20-25 percent saving in material movement

Potential capital cost savings in the millions of dollars

Plant design and optimization services based on Tecnomatix are proving to be cost-effective for India's auto industry

Consultants to the auto industry

Eicher Engineering Solutions (EES) is a unit of VE Commercial Vehicles Limited, a significant player in India's automobile industry. EES was established in 1997 as a center of excellence to provide design, development and consulting expertise in the field of engineering services. This 250-member organization works from four different worldwide locations and is divided into four practice areas: design, analysis, testing and digital manufacturing solution services. EES's client roster includes automotive OEMs and suppliers such as Nissan, Toyota, Daimler Chrysler, Peterbilt, Navistar, Kia Motors, GM, Harley Davidson and Johnson Controls.

EES's Digital Manufacturing Solutions discipline is under the direction of Sachin Sanghi. With eight years experience in industrial engineering at GM, Sanghi brings a familiarity with modern scientific plant design and optimization practices to companies that are still using 2D factory planning methods for the most part. "When I visit a prospective customer, my job is to convince them that scientific methods for factory planning can improve their production processes sufficiently to justify our services," Sanghi explains. "Their other option is to rely on in-house experience, as they have always done. The



trouble with that is that it is not scientifically based and can not provide the accurate predictions necessary for making informed decisions."

Broad-based software solution

Sanghi chose the Tecnomatix® digital manufacturing solution from Siemens PLM Software as his group's software foundation. "I chose this software in part because I was familiar with it from my days at GM," Sanghi says. "But more important to me was the support of the Siemens organization in India. They helped me justify my business plan to EES. Had they not made that investment in me, the formation of the Digital Manufacturing Solutions team would not have been possible."

Another attractive feature of the Tecnomatix solution was the breadth of its functionality. With Tecnomatix, Sanghi

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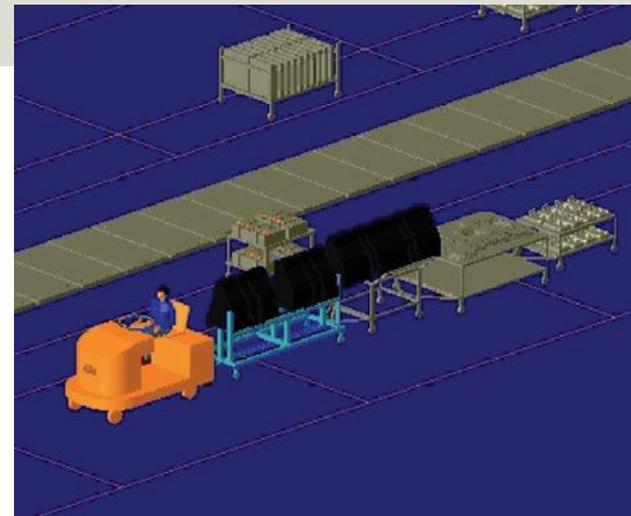
Sachin Sanghi
Practice Area Head, Digital
Manufacturing Solutions
Eicher Engineering Solutions

and his eight-member team have virtual 3D factory design capabilities (in FactoryCAD™), comprehensive analysis tools for factory logistics (FactoryFLOW™) and simulation capabilities that provide an intelligent foundation for business decisions (Plant Simulation). They also have a unified source of factory knowledge. “This is a real benefit,” Sanghi says. “The factories I create virtually contain all the data about the layout, the material handling devices, the racks, the machines and so on. I take an inventory not by physically counting but by asking the software for a report. This is a huge contrast to how internal groups handle their factory data, and it demonstrates a clear advantage of our approach.”

Real-world examples

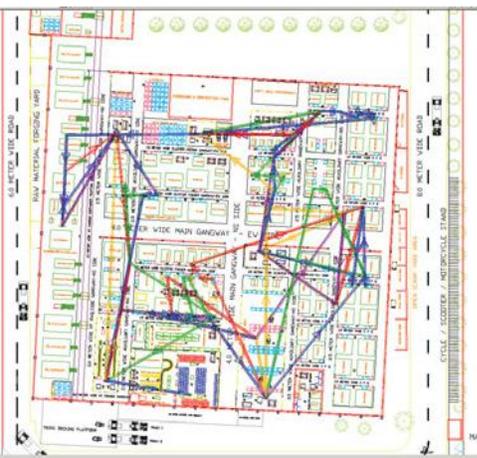
The group’s typical client is automotive and automotive component companies that are either trying to expand their existing capacity or to install additional capacity. While the current focus is on a specific sector, the tools and techniques are as relevant to sectors as diverse as aerospace, infrastructure, white goods, retail, etc. When Sanghi and his team plan these expansions using Tecnomatix software, the savings to the customer come in the form of better resource utilization, higher productivity and capital cost savings, as the following examples show.

In a job for a sister company, Eicher Engineering Components, a global tier one gear manufacturer in India, EES’s Digital Manufacturing Solutions team was called in to advise on an expansion that needed to increase the company’s capacity by a factor of three. The company had already done some planning when Sanghi’s group got involved and had determined that the expansion would need to use most of the available land. Using FactoryCAD, he was able to design the expansion in such a way that they could increase capacity by a factor of almost five without additional land.



Because he had created a 3D virtual factory in FactoryCAD, one of the options that Sanghi noticed right away was that a number of nonvalue-added activities could be moved to the mezzanine of the existing facility. “This is the sort of thing that becomes very clear when you have that third dimension to work in,” he explains. “Even the customer started contributing ideas once he saw the layout in 3D.” Sanghi made a number of other changes as well, and for this client increased overall space utilization by 33 percent. In addition, he used FactoryFLOW to reduce material flow in the facility by 26 percent. “Previously they had to move material an average of 1,000 meters (3280 feet). Using FactoryFLOW, even though I had increased the floor space, the average move was down to 703 meters (2,300 feet),” says Sanghi. The duration of that entire project was three months.

In another example, a stamping supplier to the leading Indian automotive company hired EES’s Digital Manufacturing Solutions team when it was building a new facility to meet a mandated production increase. Internal calculations showed that the new facility would need to be equipped with 19 stamping machines, at a cost of about \$250,000 each, to achieve the target capacity. “Using Plant Simulation, we determined that they would only need 14 machines,” says Sanghi. “At first they didn’t



Solutions/Services

Tecnomatix

www.siemens.com/tecnomatix

NX

www.siemens.com/nx

Customer's primary business

Eicher Engineering Solutions

Digital Manufacturing

Solutions' services include:

production system optimization,

warehouse design and optimization,

in-plant logistics design, material flow analysis

and planning, 3D layout design and process

documentation.

www.eicherengineeringsolutions.com

Customer location

Gurgaon

India

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Practice Area Head, Digital

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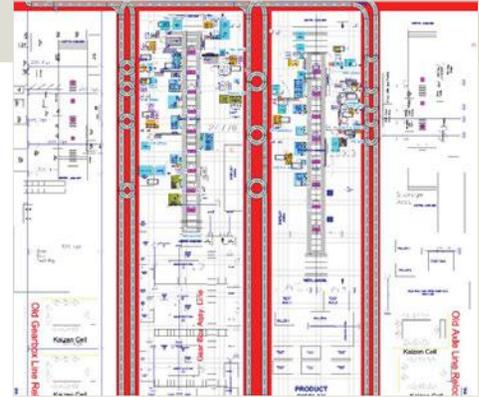
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believe us but eventually we were able to convince them of the accuracy of our calculations. They decided to purchase 15 machines (an extra one to have on a contingency basis). Our work with Plant Simulation saved that company \$1 million."

Convincing demonstrations

For the most part, EES's Digital Manufacturing Solutions' customers do not supply digital data for their facilities or equipment. Sanghi and his colleagues create the necessary geometry using FactoryCAD. They've found that this is the fastest way to work because the extensive libraries in FactoryCAD eliminate the need for modeling items from scratch. At times, Sanghi has also used the NX™ digital product development system from Siemens PLM Software to create digital product models, such as tires and fuel tanks for a warehouse space optimization job.

The ability to do this work quickly is sometimes important to winning business. But a more important selling point is giving prospective clients the assurance that EES's Digital Manufacturing Solutions team knows what it is doing. The Tecnomatix solution is valuable in this regard. "It is very effective to show 3D simulations of assembly processes, or material handling processes, or even a walkthrough of an entire facility. It meets an emotional need," says Sanghi.



For most of India, the use of plant design and optimization software represents a new approach to factory planning. With Tecnomatix and a growing body of case studies showing the cost-effectiveness of this approach, EES's Digital Manufacturing Solutions team is helping Indian manufacturers make more knowledgeable decisions as how to expand their capacity to better compete.

Siemens Industry Software

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