



“SAP xMII and Pavilion MPI help us keep inventory and costs down and margins high, which allows us to achieve our business goals faster than ever before.”

Todd Karran, Vice President and CIO, NOVA Chemicals Corporation

AT A GLANCE

Company

- Name: NOVA Chemicals Corporation (NOVA)
- Location: Calgary, Canada
- Industry: Chemicals
- Products and services: Plastics and chemicals
- Revenue: US\$6.52 billion
- Employees: 3,300
- Web site: www.novachem.com
- Partners: SAP® Consulting, Pavilion Technologies Inc.

Challenge and Opportunity

Extracting data from plant systems to make faster, more informed decisions

Objective

Use an integrated solution to link business and plant systems in order to correlate product margins and business opportunities with production status and process constraints

SAP and Partner Solutions and Services

- SAP xApp™ Manufacturing Integration and Intelligence composite application
- Pavilion Technologies Model Predictive Intelligence software

Implementation Highlight

Pilot project implementation lasted only 2.5 months with sponsorship from the vice presidents of manufacturing and engineering.

Why SAP

- First choice for all NOVA requirements
- Tight integration with Pavilion Technologies solution

Benefits

- Significant savings from higher productivity and asset utilization as well as from lower inventory
- Quicker identification of opportunities by management, resulting in higher margins and profits
- Real-time access to data, enabling better-informed decisions
- Maximized efficiencies and synchronization between theoretical and actual capacities

Existing Environment

- SAP ERP application
- Pavilion Technologies application for advanced process control

Third-Party Integration

- Database: Oracle
- Hardware: Hewlett-Packard
- Operating system: UNIX

NOVA

SAP® xMII Helps Chemicals Company Integrate Processes Across the Board

NOVA Chemicals Corporation (NOVA) is moving toward increasing integration between the plant floor and executive suite. This move provides visibility for operators and manufacturing vice presidents alike by supplying role-based access to real-time information – enabling them to adapt to operations, which maximizes corporate profitability. NOVA took one step closer to that vision by implementing the SAP® xApp™ Manufacturing Integration and Intelligence (SAP xMII) composite application and Model Predictive Intelligence (MPI) software from Pavilion Technologies Inc.

SAP xMII enables connections from the SAP ERP application to the plant in real time. This, in turn, provides NOVA with the ability to collect, analyze, and deliver information in usable form to the appropriate point on the production floor or across the enterprise. Pavilion’s MPI software leverages a dynamic model of the production process that captures variable inputs and outputs, predicts operational performance, and enables accurate, proactive decision making.

First Choice: SAP Software

NOVA Chemicals is a global company incorporated in Canada with executive offices in Pittsburgh, Pennsylvania. NOVA employs about 3,600 people globally. The company produces plastics and chemicals essential to everyday life for customers that produce consumer, industrial, and packaging products. The company also produces high-value materials such as ARCEL advanced foam resin used to reduce package sizes to maximize cube space efficiency for shipping.

The process that led to NOVA's selection of SAP xMII and Pavilion MPI was straightforward. Says Tom Alloway, leader of process automation at NOVA: "We always look to SAP first for a solution. If one exists and is cost-effective and fits our requirements, we will leverage that technology before we consider another vendor." And as NOVA already uses Pavilion's advanced process control (APC) solution to run its plants worldwide, the decision to implement MPI was made easier as well. "The same technology in APC – which allows us to model production and optimize it dynamically through predictive control, rather than react after the fact – is in MPI, so we decided to leverage MPI on top of APC," Alloway adds.

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"SAP is our business software provider – our asset, cost, and margin information is defined in SAP ERP – and Pavilion is our process optimization supplier," says Todd Karran, vice president and CIO at the US\$6.52 billion company. "We saw a great advantage in marrying the two. We asked, 'Wouldn't it be nice if we could integrate the way our plants are run with the way our business is run?'"

Tight integration between the products further simplified the choice. Pavilion's MPI and entire product platform is powered by the SAP NetWeaver® technology platform. In addition, Pavilion is an SAP partner in an industry value network for the chemical industry. The network focuses on delivering high-value solutions – anchored by SAP NetWeaver – to SAP customers in the chemical industry.

SAP xMII Provides Integrated Information

In this implementation, NOVA used MPI software to gather information from plant-floor systems to continuously predict theoretical plant capacity. The company then compared that best capacity to actual production rates. As a result, process personnel can now identify constraints and optimize product flow. SAP xMII has been proven to be able to link to Pavilion MPI to collect this capacity data and graphically visualize it for easier viewing.

SAP xMII retrieves contribution margin information from NOVA's data warehouse. The application takes this margin data by product and time frame so that it can then be mapped against the capacity metrics and viewed by plant and site managers. As a result, when fully implemented it allows manufacturing vice presidents the ability to access this intelligence via the SAP NetWeaver Portal component and to see whether or not the company has lost opportunities – or has left money on the table because assets were not used to their fullest potential.

"That's the beauty of SAP xMII – it's the integrator," says Karran. "All you have to know is where the database is; SAP xMII then goes and gets the information and starts linking it. SAP xMII plugs into our existing IT landscape to provide a direct connection between our plant and business systems. It can access any data we want, anywhere across the company, perform calculations to make it intelligible, and display it in a variety of ways. This is very powerful functionality."

Innovative and Collaborative Teamwork

Karran has high praise for the partnership between SAP and Pavilion. "The two vendors wanted to work together," he says. "Their willingness to work collaboratively and innovatively – along with the ability of SAP to provide foundation products like SAP xMII to help its customers achieve their goals – is going to make a big difference for us."

Karran says that difference will go straight to the bottom line. “In a capital-intensive manufacturing environment, utilization of assets is a key contributor to profitability. We believe there are significant savings available to companies that can increase plant utilization and better serve customer needs.” Karran adds, “SAP xMII and Pavilion MPI help us keep inventory and costs down and margins high, which allows us to achieve our business goals faster than ever before, at a time when quickness and agility have become a competitive advantage. This helps set us apart from the competition and succeed in the future.”

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Real-Time Data Motivates Operators

The pilot implementation of SAP xMII and Pavilion MPI took only two and half months to implement at NOVA’s Polyethylene 1 plant, one of several plants located in Joffre, Alberta – the largest site of its kind in the world.

At Joffre, process operators use the information derived from the MPI model-based calculations to tweak the process and remove capacity constraints. “Operators are competing with each other to bring actual utilization closer to theoretical,” Alloway says. “Our ability to display data in real time to our operators has effected a powerful change in people’s behavior, motivating them to continually adjust parameters like pressure and temperature and to de-bottleneck workflow constraints and improve operations.”

The ready availability of role-based information means process engineers can now use SAP xMII to immediately analyze the information from MPI to optimize plant operations. Plant and site managers can use SAP xMII to perform tasks appropriate to their roles – such as viewing the correlation between process constraints and gross margins. This allows them to cost out opportunities lost and make a business case to executives for how to increase profitability.

That’s a far cry from the previous way of doing business. “We used to extract a host of data from our data historians on a weekly basis to a Microsoft Excel spreadsheet,” Alloway says. “It would take the process engineer a week to collect this information, analyze it, and then push it back to the operator or plant leadership. By then it was too late. We had completed three or four product transitions, and, if they knew what happened on this one product more than a week ago, so what?”

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