

## Honeywell Space Systems

Looking to spend less time and money on documentation maintenance, this maker of advanced space systems deployed a powerful process planning solution based on Microsoft BackOffice family technologies and J-PLAN from Microsoft Certified Solution Provider Microneering Inc. Now Honeywell is updating documents 50 percent faster on average and saving \$20,000 a year by eliminating paper libraries

Like most manufacturers, Honeywell Space Systems is always on the lookout for new tools it can use to reduce cycle times and costs for key manufacturing processes. So it's no surprise that Honeywell is deploying a powerful new electronic work instruction solution based on the Microsoft® BackOffice® family of server applications and J-PLAN, an intranet-based assembly process planning application from Microsoft Certified Solution Provider Microneering Inc. With that system's help, Honeywell has cut the cost of controlling and maintaining its manufacturing documentation in half.

### All-Important Document Control

Honeywell Space Systems' modern production facility in Phoenix, Arizona is built specifically to meet the demanding requirements of making high-reliability space applications. More than 33,000 square feet of space are dedicated to assembly, inspection, and testing.

The facility's shop floor assembly process is based on work instructions, which are translations of engineering prints into readable and viewable directions. Work instructions are a vital piece of the manufacturing documentation used to build quality products. Access to and maintenance of these documents are key elements in ensuring consistent results.

However, Honeywell's paper-based work instruction process was unwieldy and labor intensive, with more than 3,000 paper documents on the production floor at any one time. "Our manual and paper-based manufacturing documentation systems were outdated and cumbersome, along with being wasteful and prone to human error," says Honeywell Manufacturing Manager Ed Banas.

Soon, Honeywell concluded that the paper-based process no longer could be improved. It was time to migrate to an electronic work instruction system.

### Improving the Process

Due to the need for compatibility with legacy systems, flexibility for expansion, and user friend-

liness, Honeywell's requirements for the new system centered on the use of proven technologies. Because the application is needed to support a critical production process, the solution also had to be reliable.

Honeywell knew that only a client/server architecture could deliver the power and reliability it required. Looking for speed and dependability, the company chose to run its solution on the Microsoft Windows NT® operating system.

As for the work instruction system itself, Honeywell went to trade shows, searched the Internet, reviewed magazine articles, and evaluated the few off-the-shelf packages available. But it still could not find a solution that met its needs. In need of advice, the company contacted Microsoft Consulting Services, which evaluated Honeywell's requirements and recommended Microneering.

At the time, Microneering was in the process of developing an Internet/intranet-based assembly process planning system called J-PLAN, which was designed to provide the same functionality as A-PLAN, the company's original process planning system. Because J-PLAN was still in development, it was not yet available for demonstration.

To demonstrate a successful operational system and establish a baseline for Honeywell, Microneering invited the company to tour a facility that was using A-PLAN. Honeywell liked the A-PLAN software and was anxious to get a look at J-PLAN. Soon afterward, a demonstration of the J-PLAN beta was conducted for Honeywell.

In the end, Honeywell chose J-PLAN as its electronic work instruction system because it not only met the company's requirements but also was flexible enough to be integrated with current and future manufacturing computer applications.

"Some key reasons for choosing J-PLAN were its compatibility with all operating systems used at

Honeywell and its ability to be viewed by our standard Internet browser, which is Internet Explorer 4.0," explains John Livingston, a senior business consultant at Honeywell.

"J-PLAN is an application that we can build on," adds Manufacturing Technical Analyst Doug Upshir. "We can link to our current legacy systems and we can add new systems such as Quality Information, Product Support, and who knows what else. The sky is the limit."

### Implementing the Solution

To demonstrate J-PLAN internally, Honeywell Space Systems piloted the system on the International Space Station product line, one of its busiest. The company installed four Windows NT-based workstations on the Space Station assembly line and linked them to the local area network. To reduce the amount of space needed at the operator station, these workstations have flat-panel monitors. Then Honeywell quickly converted a paper-based work instruction into a J-PLAN work instruction.

Teaching employees to use J-PLAN was simple. Both Microsoft Internet Explorer and Microsoft Office are familiar technologies at Honeywell Space Systems. Because J-PLAN uses a browser to display work instructions and Microsoft Word to create documents, minimal training of the product support engineers and assembly personnel was needed.

### The Results

Thanks to J-PLAN and the Microsoft BackOffice family technologies it runs under, Honeywell

Space Systems has significantly increased the efficiency of its operators and manufacturing engineers by dramatically decreasing the time they spend searching for paper documents. Employees are understandably appreciative.

"Using the computer to view the documentation is great! I love it," says Space Station Operator Rosa Gallegos. "I don't have to leave my station to search for documents and I know I am always going to be looking at the latest revision."

More concretely, J-PLAN has enabled Honeywell to slash the cycle time for changing documents by an average of 50 percent. And eliminating paper libraries is saving the company \$20,000 per year.

"Removal of documentation libraries from the production floor is an added benefit along with immediate information access," observes Banas. "Reduced product cycle times and improved documentation accuracy have resulted from the J-PLAN implementation."

Dawn Morelli, a product support engineering supervisor, points to an additional advantage provided by the Windows NT-based Microneering solution. "Since J-PLAN provides outstanding document control, it places Honeywell Space Systems in a good position in regard to maintaining its ISO 9001 certification," she says.

Overall, the J-PLAN solution met all of Honeywell's requirements and has raised the bar for future documentation process improvements.

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### Doug Upshir

Manufacturing Technical Analyst  
Honeywell Space Systems

## For More Information

### About Microsoft

Call the Microsoft Sales Information Center at (800) 426-9400. In Canada, call the Microsoft Canada Information Centre at (800) 563-9048. Outside the 50 United States and Canada, please contact your local Microsoft office.

For more information about Microsoft BackOffice-based manufacturing solutions, visit Microsoft's Manufacturing home page on the World Wide Web at <http://www.microsoft.com/industry/man/>.

### About Microneering

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Founded in 1973, Microneering provides mission-critical manufacturing software solutions for Fortune 500 companies. The company's electronic work instruction products, including J-PLAN, are cost-effective solutions for automating manufacturing documentation.

### About Honeywell Space Systems

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### Microsoft Software Used

Microsoft Exchange Server, Microsoft Internet Explorer, Microsoft NetMeeting® conferencing software, Microsoft Outlook® messaging and collaboration client, Microsoft SQL Server™, Microsoft Windows NT Server with Internet Information Server, Microsoft Windows NT Workstation, Microsoft Word

### Other Products Used

Autodesk View

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## Solution Overview

### Company Profile

Products from Honeywell, Inc. can be found almost everywhere on our planet—and beyond. Honeywell Space Systems in Arizona makes advanced controls that help guide the space shuttle, the International Space Station, and most of the satellites orbiting the earth.

### Situation

Honeywell Space Systems was using paper-based work instructions to drive its assembly process. Access to and maintenance of these documents are key elements in ensuring consistent results. However, with more than 3,000 paper documents on the production floor at any one time, this process was highly labor intensive. Honeywell soon concluded that the paper-based system no longer could be improved. It was time to migrate to an electronic work instruction system.

### Business Solution

Honeywell Space Systems implemented a client/server solution based on Microsoft BackOffice family technologies and J-PLAN, an intranet-based process planning application developed by Microsoft Certified Solution Provider Microneering Inc. Using J-PLAN, Honeywell replaced paper-based work instructions with electronic versions created using the Microsoft Office suite and viewed using Microsoft Internet Explorer.

### Benefits

Thanks to J-PLAN and the Microsoft BackOffice family it runs under, Honeywell Space Systems has significantly increased the efficiency of its operators and manufacturing engineers by dramatically decreasing the time they spend searching for paper documents. J-PLAN has enabled Honeywell to slash the cycle time for changing documents by an average of 50 percent. Eliminating paper libraries is saving the company \$20,000 per year.




With Jplan, manufacturing documentation is viewed through a browser. In this example, the client workstation has divided the assembly work instructions into the appropriate frames: document title (left top), operation number drop-down menu (left middle), text or instructions (left bottom), and hyperlinks such as sketches, digital photos, and documents (right). The frames can be customized by the Jplan system administrator.