



# Getting it down PAT

*Need advice on a process improvement or tool standardization? Process Action Teams are everywhere at Boeing and able to provide a ready solution.*

**by Daryl Stephenson**

**T**he most powerful tool you can use to help Boeing implement common systems and processes and spread best practices is on your desk. It's the telephone.

Use it to call any one of 19 Boeing Operations Process Action Teams (PATs) and you'll tap the skills of hundreds of experts across the company. These Boeing ninjas are ready to move at a moment's notice in pursuit of excellence.



PHOTO BY JASON BARRAS

**Members of the Industrial Engineering Process Action Team inspect the tie wrap process on an MV-22-to-CV-22 modification aircraft in the Philadelphia Modification Center. From left are John Crutchfield, IDS senior manager in Industrial Engineering from St. Louis and deputy leader of the Industrial Engineering PAT; Joe McCann, IDS senior manager in Industrial Engineering from Philadelphia; and Dwight Miller, BCA director of Program Planning and Control from Seattle and leader of the Industrial Engineering PAT.**

**Structure and Join Process Action Team members examine a 737 wing component as they discuss how to improve the process to integrate the component into the wing assembly. From left are Marty Chamberlin, BCA director of 737 wing manufacturing; Hoyt Bonar, BCA senior manager, wings manufacturing; Tim Boyton, BCA team leader, 737 wings; and Kyle Duncan, IDS Puget Sound director of Operations and leader of the Structure and Join PAT.**

If a problem with commodities, assemblies or support is increasing costs for your site or your program, these experts will pool their skills to solve it. The solution could involve adopting a best practice, or importing people or tools from a program or site anywhere in the company.

"The Process Action Teams function almost like support people at a 1-800 number," says Steve Detter, who leads coordination and staff support for the Boeing Operations Leadership Team. "They may not have all the answers, but they know where to go. They can pull in personnel from other functions to help out a program."

For example, the Composites PAT, led by John Triplett, has a core team of 18 representatives from eight sites. But it draws on an extended network. Almost 200 composites experts from Engineering, airplane programs, Industrial Participation, and Business Management are on call for specific action.

"What's unusual about this network is that it bridges boundaries between commercial, military, technology development and aerospace programs," Triplett says. "It is similar to a legislative body in that it represents all constituents."

In addition, Triplett says, "We've got our database of subject-matter experts broken up into processes. So when a caller says, 'Hey, I need a mechanic to do a repair,' we search the database by rework repair and it spits out the names of the experts across Boeing that we can draw on. Because of the network we've established, we can get a quick turnaround on solutions."

Other PATs work in a similar way.

*continued on page 42*

*continued from page 41*

“You can call me, and tell me what the issue is,” says Dwight Miller, who leads the Industrial Engineering PAT. “I’ll get the team together, we’ll look for the right skills and attributes and experience profiles, and we will all strive to support a struggling program or function.”

Miller’s team includes representatives from 14 Boeing sites across the United States, and draws on the talents of 1,300 industrial engineers. “Having that many engineers who are experienced in various applications is a huge advantage for Boeing,” Miller says. “It’s a tremendous piece of leverage to be able to bring that much diversity of thought and application to any issue just by making a phone call.”

The extended networks that PATs bring to bear on solving problems not only cross the lines of business units and functional organizations, they also reinforce the idea that help is at hand.

“The PATs change Boeing from a large, very complex, geographically dispersed operation to a small, intimate operation

“I think the ultimate value of the PATs is really in their technical excellence and their deep knowledge and understanding of commodities, processes and skills. You get a broad understanding of the whole business by constantly sharing, constantly visiting sites, constantly looking at the way each of us does the work.

– Dwight Miller

in which we can truly make productivity enhancements, have a great teaming environment, and freely share ideas,” says Kyle Duncan, leader of the Structure/Join Process Action Team. “It’s almost like the principle of six degrees of separation, which says that through just six people, you could reach virtually everybody in the world. At Boeing, you make one phone call, and with maybe three connections you can find the answer to just about any problem you have.”

Those kinds of results build strong bonds that last, says Jack Jones, who leads the Field and Ramp Process Action Team. “Because of the PAT I’m on, I know people now in the field and ramp world, as well as other PAT and Task teams, that I otherwise would never have had the opportunity to meet or work with,” he says. “Because I know these people personally, I don’t hesitate to pick up the phone and dial a number. When the person on the other end is someone you have established a personal working relationship with, it really facilitates our opportunity to deliver results. The people-to-people interaction is one of the most powerful elements of what the PATs have opened up.”

Providing enterprisewide solutions to programs in need is just one value that Process Action Teams provide the company. Their main focus is to spread and replicate best practices far and wide, and to help establish common systems and processes.

*continued on page 44*

## Getting it down PAT

### PATs’ progress:

Process Action Teams were born in the late 1990s. They were formed at the behest of the Boeing Operations Council, which wanted companywide teams to identify best practices, especially ones that produce significant savings, and spread those practices throughout the company.

Created at about the same time were four Task Teams. Their job has been to coordinate activities among the Process Action Teams, especially in the areas of common processes and command media.

Although it’s not possible to cover all 19 teams in the context of this story, the teams profiled here are four of the earliest and most successful. They provide good snapshots of what the PATs do, the challenges they’ve overcome, and the value they provide to Boeing.



**John Van Gels, vice president of Operations and Supplier Management for Integrated Defense Systems and chairman of the Boeing Operations Leadership Team, the current successor to the Operations Council.**

“The Process Action Teams (PATs) have been around a long time. Their focus has always been to generate best practices, ideas and systems – then work the issues together and share data. Now they are working on replicating good ideas throughout the company.”

– John Van Gels

## Composites PAT

Team leader: John Triplett, Boeing Commercial Airplanes.

Formed: 1998.

**Membership:** A core team of 18 people that includes leaders from Boeing composites fabrication facilities and representatives from Global Partners and from Materials & Process Technology. The core team draws on a network of 200 composites experts from Engineering, airplane programs, Industrial Participation, and Business Management.

**Original mission:** Asset utilization. The team assessed the capabilities and capacities of Boeing composites facilities to help determine their strategic value.

**Expanded mission today:** Be the company's single best source of information for all things related to composites fabrication. Act as a composites consulting firm within the company, at no cost. With an increased demand for composites stemming from the 787 program, the team today conducts many assessments that are focused on developing more composites capacity for future applications.

**Most significant accomplishments:** Sharing best practices and producing cost savings of \$244 million from 1998 through August 2007. Currently, the team is providing significant support to the 787 program.

**Biggest challenges:** Obtaining consistent participation by the sites and the technology organizations. Because PATs are not official organizations with operating budgets, participation is based on perceived benefit to the sponsoring organizations.

**Example of the team's value:** In 2007, the Composites PAT network supplied almost 100 people from Boeing composites organizations to support 787 partners. The team has placed 22 emergent hardware packages, which represent thousands of composite parts, at Boeing sites. Most of the people working on these hardware packages are in Integrated Defense Systems.

## Field and Ramp PAT

Team leader: Jack Jones, Boeing Commercial Airplanes.

Formed: 1998.

**Membership:** Includes representatives from every Boeing field and ramp operation. The major ones are Renton, Everett, Boeing Field Flight Test, and Boeing Field Delivery Center in Washington; Wichita, Kan.; St. Louis; Long Beach, Calif.; San Antonio; Mesa, Ariz.; Patuxent River, Md.; and Philadelphia.

**Original mission:** Sharing of best practices.

**Expanded mission today:** Focus on Lean, Lean+, and Employee Involvement.

**Most significant accomplishments:** Consolidation of hundreds of field and ramp processes in an effort to standardize practices and processes across Boeing. The team also is reducing the number of computing systems that field and ramp employees use.

**Biggest challenges:** Expanding appreciation for the Process Action Team. Members sometimes have difficulty balancing everyday work responsibilities with their service on the PAT.

**Example of the team's value:** Came to the aid of the Wichita site, unable to paint a tanker aircraft because its paint facility was being modified. The team found another facility where the job could be done quickly. The team also facilitated the move of field and ramp people from Wichita and St. Louis to Seattle to meet an emergency need on the 777 program.

## Structure and Join PAT

Team leader: Kyle Duncan, Integrated Defense Systems.

Formed: 1999.

**Membership:** Leaders from BCA, IDS and Phantom Works who are part of the manufacture or development of structural assembly and join products. Representatives from every Boeing site that performs structure and join assembly – IDS in Puget Sound, BCA in Renton, Everett and Auburn, Washington; and IDS in St. Louis, Southern California, Philadelphia, Mesa, Ariz., and San Antonio.

**Original mission:** Capture savings through a sharing of best practices.

**Expanded mission today:** Coming up with a standard set of common Information Technology systems and command media to facilitate structure and join assembly.

**Most significant accomplishments:** Documented cost savings or cost avoidances of \$242 million since 1999. The team has also created a high-performing network of experts in structure and join assembly.

**Biggest challenges:** Carving out time to work team initiatives, meeting face-to-face as a team, and taking on more responsibility without a dedicated budget or full-time support.

**Example of team's value:** Mini Accelerated Improvement Workshops in which team members from host sites would identify processes or products that needed improvement. The Structure and Join PAT would brainstorm solutions and share best practices with site representatives.

## Industrial Engineering PAT

Team leader: Dwight Miller, Boeing Commercial Airplanes.

Formed: 1999.

**Membership:** Representatives from 14 Boeing sites across the United States, including IDS Seattle; BCA Seattle; IDS sites in Long Beach, Huntington Beach, and El Segundo, Calif.; Mesa, Ariz.; Wichita, Kan.; St. Louis; Philadelphia; Huntsville, Ala.; Macon, Ga.; and San Antonio. Team draws on extended network of 1,300 industrial engineers across Boeing.

**Original mission:** Assess skills and competencies of industrial engineers across Boeing to determine centers of excellence. The team also worked to bring different IE cultures together.

**Expanded mission today:** Detailed implementation of standardized processes for all Boeing industrial engineers. The team also is establishing common classifications and common training requirements for industrial engineers.

**Most significant accomplishments:** Helping Boeing industrial engineers view themselves as a unified group with a shared vision. Team has completed assessments of capacity, tools, equipment, skills and training. The team's goal is to produce an environment in which industrial engineers would be able to move from program to program and site to site and "hit the ground running and be as efficient as possible right out of the chute," says leader Dwight Miller.

**Biggest challenges:** There is not yet a standard set of computing systems tools for industrial engineers to use across the company. The team would also like to find better ways to communicate what it has learned to the shop floor.

**Example of team's value:** In 2000, the team met for three days in Macon to develop and articulate their vision for industrial engineering. That vision, put into action, has helped build a world-class industrial engineering team with experts across Boeing to support all programs.

continued from page 42

The PATs are composed of representatives from both Commercial Airplanes and Integrated Defense Systems, so they are adept at finding commonalities between the two major business units. PATs know how to meet cost-reduction challenges and ensure functional discipline to establish reasonable program targets.



**Jack Jones is Boeing Commercial Airplanes director of Everett Field Operations and Delivery and leader of the Field and Ramp Process Action Team.**

The PATs work on these issues all of the time, not just when they're on call. Since the PATs were first formed in 1998 and 1999, their roles have expanded.

"When we started, we studied how we were using our assets in composites manufacturing in an effort to reduce our footprint," says Composites PAT leader Triplett. "But since then, with the exception of the 787, the issue for composites has changed from too much capacity to too little. As a result, we are now developing additional capacity for future applications. So now our team is expected to have expertise in what the industry is doing, prioritizing technologies, man-

aging intellectual property, and setting composites strategy," he says.

"During the past 18 months, we've been putting a big emphasis on common systems and processes, as well as sharing best practices, which we've always done," says Structure and Join team leader Duncan. "We're looking for a standard set of common systems (mainly Information Technology systems) as well as command media to facilitate structures/join work for Boeing."

Standardization is also a major focus of the Industrial Engineering PAT, says team leader Miller. "We're doing a lot of work in standards. We're building common competencies and finding general agreement on common classifications for each one of our jobs," he says. "We're getting close to having common training for our folks, and we're really sharing more across the company about what it takes for industrial engineers to be technically competent."

One reason the PATs are doing more is that they have a good track record, particularly in saving the company money, says Detter. Through September 2007, the cumulative savings since 1998 reached \$1.3 billion. In 2007 (January through September), cost savings from the PATs totaled \$372.12 million.

"I think the ultimate value of the PATs is really in their technical excellence and their deep knowledge and understanding of commodities, processes and skills," says Miller. "You get a broad understanding of the whole business by constantly sharing, constantly visiting sites, constantly looking at the way each of us does the work. It's a huge benefit." ■

## Getting it down PAT

### Boeing Process Action Teams (PATs)

Executive sponsor: Barbara O'Dell, Commercial Airplanes vice president of manufacturing

PAT staff support: Steve Detter, Integrated Defense Systems  
Mark Sanders, Commercial Airplanes

#### Commodities PATs:

- Composites, led by John Triplett, BCA
- Machining and Advanced Metal Structures, Jenette Ramos, BCA
- Electrical and Electronics, Dan Watt, IDS
- Chemical Processing Standards, Tom Deem, BCA
- Tubes and Ducts, Dave Ball, BCA
- Tooling, Frank Foeller, IDS

#### Assembly PATs:

- Structure and Join, led by Kyle Duncan, IDS
- System/Integration/Test, Don McGlothlin, IDS
- Field and Ramp, Jack Jones, BCA

#### Support PATs:

- Tool Services, led by Bob Rhine, IDS
- Industrial Engineering, Dwight Miller, BCA
- Lean, Jay Martinson, IDS
- Manufacturing Engineering, Tom Spiegel, IDS
- Production Control and Material Management, Dave Thole, IDS
- Distribution, Bob Norris, IDS
- Metrology, Vicki Dunlop, BCA
- Procurement, Stan Adachi, IDS
- Environment, Health and Safety, Doug Briggs, BCA
- Common Quality, Processes & Systems, Greg Singleton, BCA, and Kristy Heffernan, IDS

### Task Teams

- Technology Prioritization, Don Fudge, BCA
- University and Associated Relations, Howard Appelman, IDS
- IT Steering Team, Nancy Bailey, Engineering, Operations & Technology IT
- Process Steering Team, Missy Aykent, IDS, and Mark Sanders, BCA

#### Cumulative savings to Boeing:

1998 to September 2007 – \$1.3 billion

January to September 2007 – \$372.12 million



Members of the Composites Process Action Team check a 787 composite fuselage test article being prepared for fabrication on the advanced fiber placement machine at the Composite Fabrication and Assembly Center in Seattle. From left are Greg Dill, the PAT's fabrication team leader for 787 Barrel Development; Brian Wieker, leader of the Composite Fabrication and Assembly Center; and John Triplett, the PAT team leader.