Boeing is becoming more nimble, global and efficient through the deployment of standard processes and systems.

Standards
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In Everett, Wash., from left, Garry Herzberg , an Associate Technical Fellow with Boeing Commercial Airplanes, Renée Marley, a Boeing IT project manager, and Paul Dodd, an Associate Technical Fellow with Boeing IT, discuss how to adapt a wireless system used in 777 production for use on the 787 Dreamliner. It's one example of how Boeing IT is working with Boeing business units to develop standard processes and systems.

By Tom Koehler

After the mergers of Boeing, McDonnell Douglas, Rockwell, Hughes Space and Communications and others, the company's many Information Technology organizations took inventory of all of the IT systems in the new Boeing. The objective: to determine how many systems there were, understand system overlaps and gaps, and agree on the right systems to carry the company into the next decade.

What they discovered was a complex collection of business processes and systems that varied by business unit, program and site.

Employees in the predecessor companies created similar products and services, but the business processes used to perform the work were developed by different people at different times. Consequently, the IT systems in place to support the business processes also were different. For example, McDonnell Douglas engineers used different computer-aided design systems from Boeing engineers, and Rockwell supplier management employees used different purchasing systems from Hughes procurement agents.

Complicating matters further, programs within the various companies often performed similar work differently. Employees who built fighter jets in St. Louis, for instance, used different processes and systems from those used in Seattle for commercial airplanes, or those used in Southern California for cargo airplanes. Employees who worked on defense programs in most cases used completely different processes and systems from those of their counterparts on the commercial or space sides of the enterprise.

There was even variation between sites. Employees in Renton, Wash., put together single-aisle 737s and 757s using different processes and systems from those used by employees in Everett, Wash., who put together 747, 767 and 777 twin-aisle airplanes, or employees in Long Beach, Calif., who assembled 717s. In Wichita, Kan., where major airplane components were assembled, people used different processes and systems from those used anywhere else.

"We learned that we had more than 8,000 different systems across the enterprise, and every one of those unique systems supported a unique business process," says Scott Griffin, Boeing chief information officer and leader of the company's Information Technology organization. "As Boeing looked to the future, we knew we needed to be more nimble, global and efficient in order to compete effectively. We knew that we could not make that transition with our current collection of complex and redundant processes and systems."
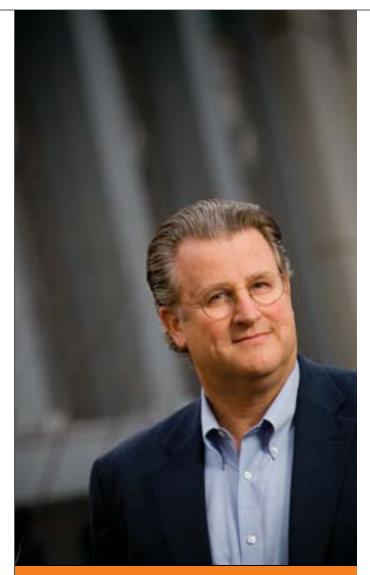
Boeing IT: an enabler of change

Boeing is becoming more global and collaborative, working more closely with suppliers around the globe. On the high-profile Boeing 787 Dreamliner program, for example, suppliers in the United States, Asia and Europe are active, risk-sharing partners in the design, fabrication and assembly of the airplane. They collaborate real-time on design across geographical and company boundaries.

Boeing must also become more nimble, allowing it to react more quickly to changes in market conditions. "One key requirement is the ability to quickly move experts to new programs," Griffin says, adding that "we can't do that in today's complex environment of unique processes and systems."

Enterprisewide standard processes and systems allow workers to be immediately effective when they move from one part of the company to another because they do not have to learn new processes and systems.

Boeing IT has several roles in the new Boeing, says Griffin, whose IT organization is part of Engineering, Operations & Technology (EO&T).

"Job one is to support the production requirements of the global enterprise – seven days a week, 24 hours a day, 365 days

IT support of the Boeing initiatives

Scott Griffin, chief information officer and leader of Boeing's Information Technology organization, says that IT standardization efforts support all four of the company's growth and productivity initiatives in the following way:

• Internal Services Productivity
Reduce IT costs year over year, regardless of the company's growth or the growth in IT statement of work.

• Lean+
Define a small, standard set of business processes and systems.

• Global Sourcing
Drive down the cost of purchased IT services, currently more than $1 billion per year, regardless of IT statement of work growth.

• Development Process Excellence
Deploy Boeing program management best practices to manage enterprise IT development projects.

a year," he says. "We maintain the systems and IT infrastructure that keep the company's programs running around the globe. We also protect the company's information resources by making them secure. Equally important are our efforts alongside the enterprise functions – Engineering, Operations, Supplier Management, Human Resources, Finance and other organizations – to move the company to standard processes and systems.

"Boeing IT is helping the company transform itself into a lean, global and collaborative enterprise."

In 2000, under Scott Griffin's direction, the many IT organizations of Boeing began work on a five-year initiative to deploy a standard IT infrastructure and to reduce the company's systems complexity by 25 percent. By 2005, the company had been able to reduce computing cost as a percentage of sales by 25 percent.

"Today our IT infrastructure is common across the enterprise, and we have reduced our applications by one-third," Griffin says. "This progress is the result of good working-together relationships between Boeing IT, the enterprise functions and

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the business units. But we still have a lot more work to do toward standardizing our business processes and reducing the complexity of our IT solutions."

The 'forward-looking' architecture

In 2006, EO&T broadened its focus, and Boeing IT stepped up to an aspirational target. Griffin and his Boeing IT team were challenged to develop a "forward-looking IT architecture." The assignment was to start with a clean slate and define the IT architecture of a more global, nimble and collaborative Boeing. The result was a radically different "go forward" plan for both business processes and systems

"The 'forward-looking architecture' is now part of our vernacular at Boeing," says Barb Claitman, former IT director of Enterprise Architecture and Integration, who is now leader of IT for Commercial Airplanes. "We talked with people throughout the company, as well as our suppliers and consultants, and we asked a lot of questions. What should be our standard process for releasing three-dimensional engineering models to our

suppliers? How do we want to collect and re-use that data ourselves at Boeing?

"Developing our IT architecture is a lot like putting together a master plan for a community," Claitman says. "We're not designing a single house – we're designing what we want the whole community to be. Where do the roads need to go? What utilities do we need? How do we want people interacting?"

"The 'forward-looking architecture' is now part of our vernacular at Boeing," says Barb Claitman, vice president of IT for Commercial Airplanes.

"This forward-looking approach resulted in a target of 1,500 systems by 2010, down from the 5,000 systems we have today," says Don Imholz, Boeing IT vice president of Systems. "For example, we took a hard look at the number of purchasing systems and asked, 'Do we really need 12 different processes and systems for purchasing?'"

"We would like to get to one or two purchasing systems that support the purchasing needs of both the commercial and defense sides of our business," Imholz says.

When a forward-looking system is selected, the goal is to replicate its use and eliminate redundant systems. Boeing program and project management professionals and financial analysts throughout the enterprise will be using a standard software toolset for integrated scheduling and earned value management activities.

The Cost Schedule Planning Reporting (CSPR) system was adopted in September as a standard by Commercial Airplanes, and had already been in use in Integrated Defense Systems. The new CSPR standard replaces several other scheduling and earned value management software tools – and its adoption is in line with Boeing's Internal Services Productivity initiative, which is driving the elimination of redundancy and capture of internal cost savings.

One of the key roles of EO&T is to "accelerate the deployment of standard processes and systems," says John Tracy, senior vice president of EO&T. Tracy is responsible for Boeing IT, Phantom Works and Intellectual Property Management, and also leads the enterprise Engineering, Operations, Supplier Management, Quality Assurance, and Program Management functions.

"Our goal is to promote 'functional excellence' within the company's major functional areas, and to deploy a lean set of standard processes and systems across the enterprise," Tracy says.

"We are committed to enabling a more nimble, global and efficient Boeing," Griffin emphasizes. "Our vision is to deliver integrated IT solutions that support revenue growth and improve the productivity of the enterprise. We will give people the information they need to do their jobs, replicate IT best practices, and help launch new programs with tried-and-true processes and systems. And we will work hard to capitalize on the best IT people wherever they are in the world." ■