



2003 Award Recipient

BOEING C-17 ST. LOUIS

The C-17 "Globemaster III" is the world's premier aircraft for transporting large, heavy cargo. It has a cruising speed comparable to today's jumbo jets and can take off and land on short, austere runways.

Since 1995 when the new fleet first became operational, C-17's have been the air lifter of choice for worldwide operations such as hurricane relief in the Caribbean, peacekeeping in Bosnia and in the ongoing fight against terrorism under the banner of Operation Enduring Freedom in Afghanistan. In Afghanistan, C-17's have flown more than 230 humanitarian missions, airdropping more than 2.4 million ration packages to refugees as well as landing bulk foods and blankets. In addition, C-17's continue to fly daily missions carrying troops, supplies and heavy equipment landing on dirt strips in Afghanistan and airfields of neighboring countries.

C-17 St. Louis, part of Boeing Integrated Defense System's St. Louis Site, provides large aircraft assemblies to Boeing C-17 Final Assembly in Long Beach, California. Key Customer Requirements are performance excellence in product quality, cost, and on-time delivery.

St. Louis is the single largest supplier of C-17 aircraft parts and assemblies, building and delivering seven large structural assemblies and approximately 800



individual parts. The structural assemblies constitute approximately 20% of the C-17 airframe by weight. The structures are large and complex. The Forward Fuselage, for example, includes hydraulic, oxygen, electrical, and environmental systems, flight control mechanisms, and thousands of structural parts and fasteners.

The facilities used by C-17 St. Louis occupy approximately 330,000 square feet. Production processes include manual and automatic drilling and fastener installation, as well as sealing, wiring, and swaging.

Through a strong Leadership model, systematic "Plan-Do-Check-Act" cycles, and near-real-time performance feedback data, C-17 St. Louis has created a culture that is driven by process and product quality. The real key to success, however, has been teams of committed, focused people. High Performance Work Organization (HPWO) teams in particular are key to both current and future organizational success.

HPWO's consist primarily of Collective Bargaining Unit (CBU) employees but often include Manufacturing or Quality Engineers. These teams systematically progress through an HPWO maturity model and ultimately become self-managed. They are responsible for quality, cost, on-time delivery, and customer satisfaction. At the highest maturity level (Level 4), HPWO's are characterized by the following:

- Responsibility, accountability and authority for managing day-to-day activities within defined boundaries.
- Performance of day-to-day activities without supervision.
- Routine assignment and management of activities like work assignments, team quality, training coordination, budget administration, goal setting, and performance metrics.



- Team decision making by consensus.
- Continual learning, development and responding to need for change.

A formal Strategic Planning process is used to validate Vision, Values and Challenges, as well as to ensure linkages of Challenges to Team Goals and Action Plans. Challenges are consistently established on the basis of facts and data, resulting in challenging goals which require critical evaluation of old paradigms and breakthrough process innovations and improvements. Subsequent improvement projects are developed, planned and executed by empowered teams.

Process Improvement resources are provided to teams on the basis of sound business cases, and teams are held accountable for results using a simple but effective, Plan-Do-Check-Act deployment process. Balanced Score Cards were replaced in 2003 with the Vision Support Plans (VSP). VSP combines the balanced scorecard approach with new on-line functionality to allow employees at all levels to view goals and metrics via the Boeing intranet. By providing easy "drill-up; drill-down" capability, VSP represents a major improvement to the process of goal flow-down, alignment, and performance tracking.

The C-17 Program in St. Louis has established lean manufacturing as a strategic goal and follows a structured process for its implementation. The lean

implementation plan focuses on four key areas: eliminating waste, simplifying work, increasing throughput and improving teamwork. A formal assessment tool is used on an annual basis to measure progress and identify opportunities for improvement.

C-17 St. Louis monitors performance through robust information management systems providing simultaneous access to vital data by executive leadership and shop floor worker.

In addition, user information interfaces are provided to provide efficient and effective ad-hoc queries and collective analysis, including automated defect mapping to detect defect concentrations for corrective action.

The St. Louis C-17 organization works closely with its customer to identify requirements and establish effective metrics and data to drive continuous improvement. In 2000, C-17 St. Louis was recognized as a "Silver-Level" Preferred Supplier through the rigorous Boeing Preferred Supplier Certification Process, and is currently at the "Gold Level" for product quality. A key to improving quality of delivered product was the collaborative establishment of user-friendly data base interfaces to provide daily/weekly visibility of customer-identified product nonconformance data.

For more information please contact:

Tom Michalek
C-17 Program Quality Manager
PO Box 516
MC S106-7110-B101A-RM320C
St. Louis, Missouri 63166-0516
Phone: 314-233-2356
e-mail: thomas.j.michalek@boeing.com