



Backgrounder

Boeing Commercial Airplanes
P.O. Box 3707 MC 03-XW
Seattle, Washington 98124-2207
www.boeing.com

Managing supplier quality: Rigorous checks, high standards and disciplined collaboration

Building a Boeing jetliner takes many parts – from roughly 400,000 in a 737 to about 6 million in a 747 – that are provided by Boeing and its supplier partners around the world. Approximately 2.3 million parts come together in the company's newest 787 Dreamliner.

Bringing parts into the production system for a commercial jetliner, from simple but critical items such as fasteners to the complex engines that power the airplanes skyward, is no easy task. In fact, it is an extremely complex business, and any misstep can have serious consequences. To make sure that doesn't happen, Boeing uses a robust, disciplined and proven process to ensure parts and services meet all specifications for quality and performance and reach the company's factories on time.

Given the risk, complex engineering challenges, long lead times, and precise quality and inspection requirements, potential suppliers must be able to reliably and consistently produce products that meet exacting standards.

Potential suppliers are evaluated on a range of criteria, including commercial capability, capacity, integrity, financial health, geographic location, performance, reliability, quality of product, delivery and overall customer-supplier relations. A key criterion is a proven ability to manage a subtier supply chain.



Boeing regularly audits its suppliers to ensure that their products are meeting the standards around building safe, reliable airplanes. Each year, Boeing assesses hundreds of suppliers based on performance, complexity of the work being done, number of failures recorded and previous quality issues.

Boeing also has a rigorous process to inspect products when they are received from suppliers. A part or component is inspected in one of three ways before it is installed on an airplane. One option is inspection by Boeing Supplier Quality employees at the supplier location. Another is Boeing inspection upon receipt of the item. And a third option is a supplier-delegated inspection. Supplier delegation is only allowed for those suppliers who have a history of good performance and quality.

If Boeing receives a part that is determined to be **non-conforming**, Boeing records the specific problem and gives the part to Engineering for further analysis. Boeing engineers evaluate the part to determine if it is okay to use as is, if it can be reworked by Boeing employees or if it needs to be scrapped. In the event rework is called for, the supplier is assessed a financial penalty. In some cases and with some specific components, the supplier has employees located at Boeing to do any required rework.

In the event there are **recurring** quality problems with one supplier, Boeing conducts a Supplier Evaluation Report. This report, or "finding," articulates the problem, determines whether it is major or minor, and mandates that the supplier produce a corrective action plan to address the ongoing issue. Ideally, the supplier will correct the problem on first notification, eliminating the likelihood that the issue will recur. When that doesn't happen, Boeing has the option of putting a supplier on probation, withholding future work from the supplier or, in worst-case scenarios, removing the work from the supplier completely and sourcing it elsewhere.

Boeing works with the Federal Aviation Administration to ensure that suppliers are performing at a high level. In the event the FAA identifies a potential quality issue involving a supplier, Boeing treats that with the same serious determination to fix and ensure the problem doesn't recur as if it were our own production system .

Upon receipt of a Letter of Investigation (LOI) from the FAA concerning a supplier, Boeing:

- Conducts an investigation
- Develops immediate corrective actions
- Conducts a root-cause analysis
- Prepares long-term corrective actions
- Verifies effectiveness of corrective actions

Boeing's global supply chain

Suppliers have participated in the Boeing Production System since the company was founded in 1916. William Boeing Sr. procured finished assemblies such as engines and

Suppliers worldwide locations



materials such as the “very best Irish linen” covering the wings of his first airplanes, including the Model C, Boeing’s first production airplane.

Today, Boeing oversees a diverse and extensive supply chain, working collaboratively to ensure quality and to continuously improve processes that result in safe, reliable and high-quality airplanes and services.

Statistics paint a vivid picture of the impact and reach of the company’s supply chain:

- \$35 billion paid by Boeing Commercial Airplanes in 2013 to suppliers.
- 5,400 supplier factories on six continents, including subtier suppliers.
- 500,000 people employed at supplier and subtier locations.
- More than 900 million components and assemblies procured in 2013, expected to reach one billion in 2014.

Boeing purchases approximately 75 percent of its supplier content from U.S. companies, and on the 787 program, U.S. content accounts for roughly 70 percent of purchased parts and assemblies.

The benefits of a global, geographically diverse supply network outweigh any **potential challenges**. Using a disciplined selection process, Boeing has leveraged the expertise and resources of suppliers around the world while protecting its competitive advantage and intellectual property, and reducing risk. Global collaboration drives innovation, which results in the best value for customers. For example, our partners around the world have contributed many key innovations that have enabled us to revolutionize airplane production by using composites for primary structures.

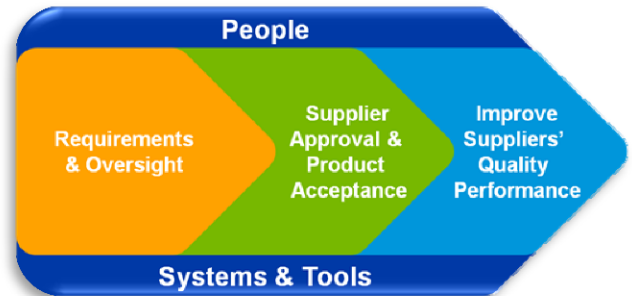
Strong management and collaboration ensures performance, quality

Boeing’s commitment to quality and safety is paramount and is reflected in its airplanes – from development to production; delivery to commercial service. No airplane is handed over to the customer until it has met the rigorous standards of Boeing and regulatory authorities.

Rigorous evaluation and selection process



Effective management requires a highly structured system such as the Quality Management System that ensures process consistency, accountability and compliance at all levels of the Boeing supply chain. This system requires performance and collaboration; dedicated resources; and a disciplined approach to setting expectations, sharing information, resolving issues and making decisions. Boeing employs a full portfolio of tools, such as on-site assessments, monitoring, shared production readiness systems and regular status updates, to work with its suppliers.



Currently, there are 13,000 Boeing airplanes in the worldwide commercial airplane fleet, all built using this robust and exhaustive approach to quality and supplier management. In the next 20 years, that number is expected to double. When customers take delivery of new airplanes, they can count on Boeing's supplier management program to ensure Boeing's products and services reflect excellence and value.

#

August 2014

Contact: Supplier Management Communications, + 1 425-717-9895