



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 1 million 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 locations, 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'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 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 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:

- \$28 billion spent by Boeing Commercial Airplanes in 2012.
- 5,400 supplier factories on six continents, including subtier suppliers.
- 500,000 people employed at supplier and subtier locations.
- More than 750 million components and assemblies procured in 2012, expected to reach one billion in 2013.

In 2012, Boeing purchased 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 the risks. 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.

Sourcing decisions

Boeing continuously analyzes which components to provide itself – the 787 vertical fins built in Utah and Washington State, for example – and those it needs from suppliers. Knowing when to seek outside support and expertise is a key consideration in the company's sourcing decisions.

Internally, approximately 20,000 Commercial Airplanes employees in the United States, Canada and Australia make up the in-house supplier base, providing critical manufacturing and assembly support as part of the Boeing Production System.

Boeing's supplier network is an extension of its own factories, and as such, the company expects suppliers to meet or exceed performance measures for quality, capability and compliance, regardless of whether they are top-tier or sub-tier suppliers.

Suppliers also must certify their production systems to meet Quality Management System requirements, which means they are approved by Boeing, the Federal Aviation Administration (FAA) and an independent third party. Additionally, the FAA has a dedicated certificate management unit that is responsible for the oversight and compliance of Boeing's management of their approved suppliers.

Throughout production, consistently tracking performance, operations, finances and strategy provides critical visibility into all levels of the supply chain. If needed, Boeing Quality representatives – working on site at supplier facilities – perform audits to correct performance issues quickly.

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.

Effective management requires a highly structured system such as the Quality Management System in place at Boeing that ensures process consistency, accountability and compliance at all levels of the 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 12,000 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 they take delivery of new airplanes,

customers can count on Boeing's supplier management program to ensure Boeing's products and services reflect excellence and value.

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