Interplex

Did You Know ?

New Aircraft Engines are Shrinking Our World

Fuel-efficient Engines Enable "Right-sizing" of Passenger Capacity by Flying Smaller Aircraft Over Longer Distances

Improved Fuel Efficiencies are Transforming Modern Airlines

Fuel costs have historically been the single biggest expense factor for airlines worldwide, despite the use of sophisticated financial tactics such as hedging fuel prices with long-term contracts. The only real method to drive down this inevitable cost is for aircraft to become more fuel-efficient. Fortunately, recent advances in aircraft engine technology offer major advantages in this arena.

The Latest Game Changer: New Generation LEAP Engines

CFM International's advanced LEAP engine offers airline operators a 15% improvement in fuel consumption and CO_2 emissions compared to traditional engines. It is also designed to extend time-on-wing margins and provide advanced predictive analytics to keep maintenance costs low.

Co-owned by General Electric and Safran Aircraft Engines, CFM has more than doubled[1] the number of LEAP engines it delivered in 2018 vs. 2017. Delivering over 1,118 of the engines in 2018, the company is on track to deliver at least 1,800 in 2019 and over 2,000 annually by 2020.

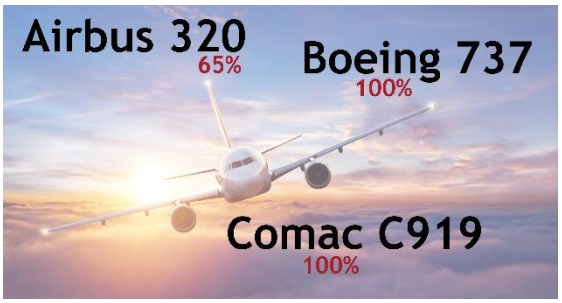

Figure 1 - Major Airframes Using LEAP Engines and Their Respective Market Shares

Key tenets of these new-generation aircraft engine designs include reducing weight, providing higher thrust per pound and leveraging advanced materials to extend life cycles and improve safety while reducing maintenance costs.

These smaller, fuel-efficient engines open new opportunities for airlines to extend the range of mid-size airframes and enable "right-sizing" of passenger capacity. By flying these smaller airframes on intercontinental routes, they improve efficiency while transporting more people to more places around the world.

[1] "CFM Logs More Than 3,300 Engine Orders in 2018." CFM International Press Release, 1 Feb 2019.

Complexities of the Global Aerospace Industry

The global aerospace industry consists of a complex hierarchy of prime aircraft makers and suppliers across various tiers. This ecosystem has evolved to support the unique requirements of international aviation, and is dependent on important working relationships based on proven performance, core competencies, deep experience and a high level of trust built through each supplier's track record of reliability and success.

The aerospace industry is a tightly regulated one with a strong emphasis on safety and international regulatory bodies. Suppliers throughout the value chain need to maintain high quality standards in both design and production, as well as mandated inspection, testing, and documentation procedures.

Multi-Tier Inter-Company Relationships are Critical for Success

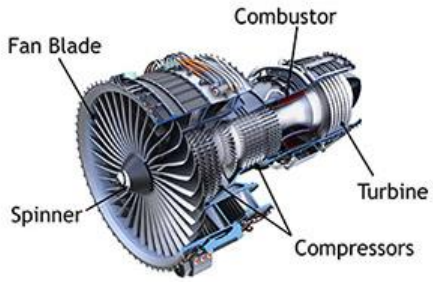

Figure 2 - LEAP Engine Parts

Consisting of many complex precision parts, engines typically account for approximately 20% of a commercial airliner's overall cost. Alliances and joint ventures— as in the case of CFM International— provide opportunities for synergistic large-scale development programs and to leverage the same underlying engine designs across multiple airframe applications.

In the most successful of such relationships, suppliers bring to the table a deep reservoir of experience in part design, materials selection, and process integration. For complex parts or multiple inter-related parts, working with specialists with expertise in combining multi-step production and assembly processes help to maximize efficiency and reduce costs.

Suppliers also must be able to respond within the unique development and production timeframes inherent in the industry. Aircraft primes generally have development programs that take a long time to ramp up production, but they still need rapid response from suppliers during the design, prototype and analysis phases. A reliable supplier should be able to react quickly when required, while also possessing the staying power to be there during the ultimate production ramp-up.

By working closely together and leveraging the core competencies of multiple companies, prime aircraft makers, engine manufacturers and the ecosystem of multi-tier suppliers are collaboratively creating a new generation of more fuel-efficient aircraft. These new aircraft options help airline operators to achieve their business goals, all while shrinking our world and enabling passengers to get around easier and faster.

For more information, visit our Aerospace webpage or email us at communications@interplex.com.