



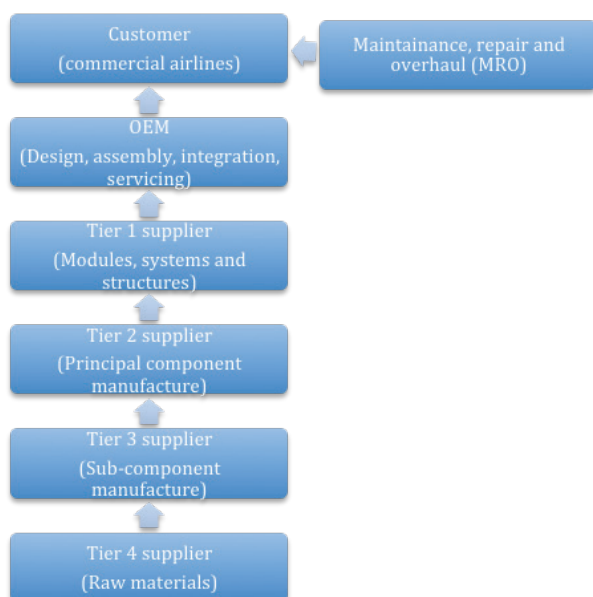
Aeronautical supply chains

The aerospace industry relies on numerous different supply chains that provide the raw materials and components for the manufacture and servicing of aircraft and their engines.

Aeronautical supply chains involve several **tiers**. The original equipment manufacturers (OEMs) that produce aircraft and engines for airline operators source structures and systems from tier 1 suppliers, who source components from tier 2 suppliers, who source parts from tier 3 suppliers, who source raw materials from tier 4 suppliers.

In addition to manufacturing engines and aircraft, OEMs are engaged in the provision of **Maintenance, repair and overhaul (MRO) services** to airline operators, who increasingly choose to outsource these functions. For example, around 80 percent of Rolls Royce engines sold now include TotalCare® aftercare, and this part of the business now accounts for more revenue than engine sales – 63 percent of the engines division's total revenues. As a result, the provision of maintenance, repair and overhaul services is a major part of aeronautical supply chains.

Transport workers play a key role in these supply chains. Each of these stages is connected by transport workers moving materials, parts, components and modules by road, rail, sea and air between companies and sites.



Lead firms in aeronautical supply chains

Aeronautical supply chains are known as producer-led supply chains. This means that the lead firms that exercise power over other players in the supply chain are the OEMs. These manufacturers have this power because they dominate the global market for commercial aircraft and engines, and therefore suppliers have no choice but to sell to them. This enables OEMs to make demands of their suppliers that affect the wages and conditions of workers across the whole supply chain, including transport workers.

The biggest OEMs in these supply chains are identified below.

Aero-engine manufacture is dominated by a big three of Rolls Royce, GE Aviation and Pratt & Whitney:

- **GE Aviation**, a subsidiary of General Electric, is the biggest aero-engine manufacturer in the world and had revenues of USD18.9 billion in 2011.
- **Rolls Royce** employs around 40,400 people globally and has businesses headquartered in the UK, USA, Canada, Germany, Scandinavia, Singapore, India and Brazil. Annual revenues were USD18.9 billion in 2011.
- **Pratt and Whitney**, a subsidiary of United Technologies Corporation, produces engines that power more than 25 percent of the world's passenger aircraft fleet. 2012 revenues were USD14bn.

Commercial aircraft manufacture is dominated by a duopoly of Boeing and Airbus.

- **Boeing** is the world's biggest aerospace company. Its Boeing Commercial Airplanes division had revenues of USD49.1 billion in 2012 and employed 85,000 people. The main commercial products are the 737, 747, 767 and 777 families of airplanes and the Boeing Business Jet. The company has nearly 12,000 commercial jetliners in service worldwide, which is roughly 75 percent of the world fleet. Boeing's supply chains are extensive, and the company has contracts with 26,500 suppliers and partners globally.

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- **Airbus** boasts that it captures approximately half of all orders for large commercial airliners. Airbus employs 59,000 people and has fully-owned subsidiaries in the United States, China, Japan and in the Middle East, as well as a network of 1,500 suppliers in 30 countries.

It is worth noting that **cargo airlines** (such as FedEx, UPS, DHL) operate fleets that generally comprise older aircraft, often converted from passenger jets. As a result, the supply chains for these aircraft are not necessarily dominated by the OEMs in the same way as described above. Rather, companies that are involved in converting aircraft from passenger to cargo use are major players. This includes OEMs such as Boeing and Airbus, as well as third party maintenance, repair and overhaul providers and tier 1 manufacturers.

Current trends in aeronautical supply chains
OEMs are increasingly **outsourcing design and manufacturing functions** to suppliers further down the supply chain. This saves money and time, enables OEMs to concentrate on their core business, and shares risk across the supply chain. As such, OEMs increasingly view themselves as integrators rather than manufacturers.

Whereas they used to be concentrated in Europe and North America, **aeronautical supply chains are becoming more geographically dispersed**, with functions increasingly outsourced to South America, China, India, Malaysia, Morocco, Russia, UAE and Singapore. This fits in with the general trend of the globalisation of supply chains. However, the vast majority of tier 1 and tier 2 production is still carried out in Europe and North America, where lead firms are based.

Aeronautical supply chains are also **becoming more integrated** due to:

- The consolidation of ownership across tiers due to, for example, tier 4 companies buying out tier 3 companies.
- An increasing number of joint ventures and partnerships between OEMs and other suppliers to produce component parts in order to share risk, leading to a reduction in the number of suppliers in supply chains.

What does this mean for transport workers and their unions?

At the core of aeronautical supply chains are the workers: miners in titanium mines; metal workers in foundries; engineers in maintenance, repair and overhaul; pilots, ground staff and cabin crew keeping the aircraft flying; and transport workers moving materials, parts, components and modules by road, rail, sea and air between companies and sites. **Strategic cooperation between these different types of workers is necessary in order to improve working conditions across global supply chains.**

To this end, the ITF has come together with the global manufacturing union IndustriALL to establish the **components to carriers initiative**. This joint initiative will encourage co-operation between unions representing different types of workers employed in aeronautical supply chains as well as unions organising in the aviation and maintenance, repair and overhaul sectors. It will do so through sharing best practice, encouraging solidarity action, building joint strategies to grow worker power, mapping union strength, and gathering intelligence on global corporations and supply chain developments.

The first step is to **develop an active and engaged network of trade unions that represent different types of worker across aeronautical supply chains**. ITF research suggests that union membership is fairly strong in tiers 1 and 2, probably due to the dominance of a few large specialised manufacturers. However, the outsourcing and offshoring of production in tiers 3 and 4 is having a detrimental impact on union membership further up the chain. As such, in addition to connecting existing unions, there is a pressing need to develop organising initiatives that address current gaps in union organising

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