

# Global Britain Briefing Note

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## Why Airbus will stay in the UK

### *The Airbus 380 illustrates the temporal & spatial complexity of global supply chains*

Global Britain Briefing Note No 92 was published in May 2014 under the heading *Global Supply Chains don't spring into being overnight....nor can they be replicated overnight*. It observed that “Multinationals, through their Global Supply Chains...account for 80% of global trade. Constructing a properly-functioning Global Supply Chain requires sustained effort and substantial resources deployed over years, even decades: management, equipment, services, logistics, real estate, finance, systems etc etc. Building a Global Supply Chain is a highly-complex long-term enterprise”.

The Airbus 380 double-decker four-engined airliner is an illustration of such a Global Supply Chain.

#### Launch of the Airbus 380

Work on designing what was to become the A380 began over a quarter of a century ago, in 1988. Airbus organised four teams of designers, one from each of its partners, Aérospatiale, British Aerospace, Deutsche Aerospace & Spain's CASA. At the same time, Boeing was working on a successor design, subsequently abandoned, to its 747 model.

In 1994, 21 years ago, Airbus decided to develop the aircraft now known as the A380. The design was finalised in 2001 and manufacturing began in 2002.

#### Manufacturing & Assembly

Major structural sections of the A380 are built in France, Germany, Spain & the UK. Due to the sections' large size, they are mainly brought to the final assembly hall in Toulouse by a specialised surface transportation system known collectively as the *Itinéraire à Grand Gabarit* - “Wide-Load Route”. This involved designing and building a fleet of roll-on roll-off (“Ro-Ro”) ocean- and river-going ships and barges, the creation and re-building of roads and bridges to accommodate oversized road convoys, and the conversion of Airbus cargo-planes to shuttle less bulky components between plants.

The fuselage sections are shipped by Ro-Ro vessels from Hamburg to the UK. The wings are manufactured at Broughton near Chester, then transported by barge to Mostyn (on the Dee estuary) for shipment to St Nazaire in western France, where some sections are unloaded. The ship continues to Bordeaux, unloads then sails to Cadiz in southern Spain to pick up the belly & tail sections manufactured by CASA & bring them back to Bordeaux. From Bordeaux, these vast sub-assemblies go by barge up the River Garonne, through bridges rebuilt to allow them to pass, to Langon, then by oversize road convoys to Toulouse for final assembly. The landing gear, consisting of 22 massive wheels mounted on five bogies, is made in Montréal, Canada, by Messier-Dowty.

From Toulouse, the now airworthy A380s fly to Hamburg to be fitted-out to the customer-airlines' specifications (involving hundreds of miles of electrical cabling) and painted.

### **Engines**

The A380 is powered by four British-manufactured Rolls-Royce Trent engines, or by US-manufactured Engine Alliance (GE-Pratt & Whitney) engines. Rolls-Royce engines for the A380 are probably outselling those of Engine Alliance. Each Rolls-Royce Trent engine has 38,000 highly-engineered components (involving a separate highly-complex global supply chain).

### **A380s in service**

As of June 2015, 162 A380s are in service worldwide; the full order-book (including those in service) is currently 317. The primary operators are Emirates, Singapore Airlines, Lufthansa & Qantas. Each aircraft costs some US \$ 430 million. Its "payload" is up to 853 passengers, depending on how the operator configures the aircraft.

### **Longest A380 route**

The longest A380 route, and the longest commercial route in the world, is Sydney - Dallas Fort Worth, a distance of 8,577 miles, operated by Qantas.

### **Conclusion**

The A380 multinational global supply chain may be complex, but is by no means unique.

A change in the political arrangements of a country-link in such supply chains - for example, an EU member-state deciding to move to "associate" status, or to renounce EU membership entirely - is highly unlikely to disturb supply chains, especially those that have been operating for decades. In the case of the A380, the country that builds the wings, supplies the customers' preferred aero-engines and much of the plane's engineering expertise, is the UK.

### **References**

We are grateful to Wikipedia for their reports on Airbus, the A380 programme and related topics: [https://en.wikipedia.org/wiki/Airbus\\_A380](https://en.wikipedia.org/wiki/Airbus_A380)

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