Brief for profitability

* Wide body aircraft (like A350 and 787)
* Airliner of conventional design
* 500 passengers
* With baggage
* Twin class configuration (possible to do premium economy and economy or just the usual)
* 4 pilots
* 12 cabin crew
* NO additional cargo storage to be transported

Similar distance to design brief routes:

7500 nautical miles equivalent to around 13980 km

Long-haul international flight routes. Some common flight routes around this distance include:

1. **Sydney, Australia (SYD) to New York City, USA (JFK)** – Approximately 13,980 km
2. **Auckland, New Zealand (AKL) to Dubai, UAE (DXB)** – Roughly 14,200 km, close to the given distance
3. **Los Angeles, USA (LAX) to Singapore (SIN)** – About 14,100 km

LA to Singapore most profitable   
<https://airlinegeeks.com/2022/11/07/61784/>

These three flight routes fit the design brief distance, so can start here with what airlines do to generate maximum profitability

<https://centreforaviation.com/analysis/reports/singapore-airlines-group-aims-to-improve-long-term-outlook-following-its-biggest-ever-strategy-shift-87706> (mixed cabin strategies)

two classes with business and economy

business 1 2 1

economy 3 3 3

Regulations

* No requirements from EASA or FAA on seat width but only safety concerns, only requirement is only have to evacuate the seat within 90 seconds
* Allow sufficient space to evacuate of an emergency

### Economy seat dimensions

**Width between armrests**: Typically ranges from 17 to 18.5 inches (43 to 47 cm), with wider seats found on newer Airbus A320s and narrower seats on high-density Boeing 777s and 787s​  
  
<https://www.airfarewatchdog.com/blog/37184949/a-quick-guide-to-airline-seat-width/>

**Seat pitch** (distance from one seatback to the next) usually ranges from **28 to 32 inches** (71 to 81 cm). This measurement affects legroom but is not directly the seat length. The actual seat pan length (where passengers sit) is typically about **17 to 20 inches** (43 to 50 cm)​

<https://www.seatguru.com/charts/longhaul_economy.php>

The **height of the seatback** is generally between **30 and 36 inches** (76 to 91 cm). Taller seatbacks are common in newer configurations to accommodate adjustable headrests.