# BUSINESS JETS – BUDGETING AIRCRAFT COSTS

***One of a series of papers for business jet owners***

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## Direct & In-Direct Operating Costs

ICAO defines direct operating costs (DOCs) as: the total of flight operations costs (flight crew salaries and expenses, aircraft fuel and oils, aircraft insurances, aircraft rentals, flight crew training – where not amortised, and other flight expenses), maintenance and overhaul costs, depreciation and amortisation (aircraft, required ground equipment and associated property).

Operators and analysts will sub-divide DOCs into fixed and variable, with flight crew salaries, depreciation, aircraft rentals, insurances, and maintenance burden determined as fixed, while fuels and oils, flight crew and other expenses, and airframe and engine maintenance considered variable.

Indirect Operating Costs (IDOCs) are defined as: the total of user charges and airport expenses (landing and airport charges, enroute facility and navigation charges, and handling expenses), passenger services costs, catering, security, general and administrative, and other operating expenses.

Operators may lack an accurate mechanism of attributing costs, particularly where several different types are operated and the proper allocation of true direct and indirect, function, capability and facility costs become arguably impossible.

Reporting formats therefore vary considerably, and, where published, may not provide a clear like-for-like benchmark for comparison.

## U.S. versus Elsewhere

Costs of operation and maintenance in the non-US environment are significantly different, indeed routinely much greater, than those experienced in the United States (the market from which most of the manufacturers' quoted cost data is usually derived).

This is due in main to differing operational and maintenance regulations, higher airport user fees and navigation charges, increased maintenance labour costs, longer supply lines and parts shipping costs, and other regional factors.

## Different Types & Models

Differences in cost of operation between the various aircraft types and models are largely a factor of:

- Relative capital value hence depreciation, cost of capital and insurance hull rates
- Relative maximum take-off weight, hence engine power and associated fuel burn
- Navigation charges, landing and parking fees (which are linked to weight)
- Handling charges (which are linked to size/weight)
- Relative complexity, hence engineering man-hour requirements and cost of maintenance
- True residual or ultimate resale value

Other costs, such as pilot salaries, liability insurance, etc., are much the same for all types.

The difference in operating costs between individual aircraft types and models must, of course, be weighed against relative mission performance and comfort.

## Maintenance Costs

Apportioning maintenance costs is much dependent on the level of engineering work outsourced and operator accounting policies.

The individual aircraft maintenance history, engine and component lives, the length of an average sector, runway length and surface, operating procedures, engine handling and braking techniques, the cost of shipping parts and supply lines, and general maintenance practices, also have a significant role to play in determining final costs experienced in a particular operation.

**FIXED (ANNUAL) COSTS:**

**Market Depreciation** – To accurately attribute a true value for depreciation in terms of aircraft ownership and operation, a 'market depreciation' figure should be used in the budget, i.e. taking fully into account resale value retention. Historically, this has been no more than approximately 6% per annum for a well-maintained unit in mid-life condition, depending very much on aircraft type and model.

**Cost of Capital** – Varies from owner to owner.

**Rentals** – If leased, actual monthly or quarterly rental charges should be considered in lieu of market depreciation and cost of capital.

**Hull Insurance** – This is typically based on Lloyds' market rates and an agreed* aircraft hull value. War risk cover is also required for the hull, while certain named current war zone countries may be excluded from time to time unless specific underwriter agreement is sought and expressly given. Agreed* value is just that, with premium based on this figure and payment in event of loss also at this figure. It is important that the owner is recorded as '*First Loss Payee'* and not the operator.
*(*) Note: Certain insurance jurisdictions do not accept the principle of agreed value.*

**Combined Third Party Insurance** – This covers passenger, baggage and third-party liability. Many national authorities, aircraft financiers and airport operators establish minimum third-party cover requirements. We would recommend such cover in an amount of at least US$ 350 million or, of course, more if legally required. Lead underwriters active in the sector include AIG, Global and Starr.

**Management Fees** – Negotiable with a management company, typically based on size of aircraft and nature of operations envisaged. Provides for overall administration of aircraft operation, including licensing, human resources, flight safety and training, standards, maintenance planning and supervision, flight planning and flight watch, contracts and budgetary control. Be aware of transfer pricing and unseen credit notes.

**Hangar Rental** – Negotiable, depending on (a) supply and demand at airport concerned, (b) the aircraft's size, typically judged by wingspan or weight, and (c) whether additional services (e.g. maintenance or handling) are co-sourced. Will typically include towing to and from hangar and limited parking at base airport.

**Flight Crew Salaries & Benefits** – Market driven by the airlines and occasionally by other market conditions, though must be adequate to secure high calibre personnel and to negate staff turnover (not least due to relatively high type conversion and other training costs associated with each new pilot or engineer). Due to duty and flight scheduling and allowances for leave, training and illness, and more particularly safety-led individual duty time and flight time limitations, a typical corporate pilot will fly no more than 250-500 hours annually (airline pilots will routinely fly 600-900 hours annually, though maximum permissible is generally 100 hours per month up to a maximum 1000 hours per annum). Benefits, including allowances, pension contributions, medical insurance, and uniform may represent 20-30% of salary. A typical business aircraft will require two captains and one first officer, though a charter operator may seek employment of two full crews in order to provide it with greater flexibility and increased redundancy.

**Annual Recurrent Training** – Provision must be made for each pilot to be sent to an appropriate simulator training facility (ideally twice) per year, also to include travel and accommodation for several days on each occasion.

**Cabin Crew Salaries & Benefits** - Cabin crew duty and flight time will mirror those of the pilots. Benefits are similar and a 20-30% provision should thus be allowed.

**Cosmetic Refurbishment** – Seats, carpets and upholstery require regular care and attention to retain their looks. A nominal provision should be made for cabin upkeep. This will be significantly increased if the aircraft is chartered to third parties.

**Other, Administration, Fees, Subscriptions, Documents, etc.** – A provision to include use of office facilities, licence fees, aircraft registration fees, annual certificate fees, manual subscriptions and publications, navigation database subscriptions, parts shipping and carriage, etc.

**VARIABLE (USER) COSTS:**

**Fuel** – Aircraft engines burn more fuel per hour the shorter the flight or the heavier the aeroplane, hence budget fuel burn should be based on a trip length typical of the user's requirements. On a shorter trip, or with a greater load, actual fuel burn per hour will be greater. Fuel costs can vary considerably by location, depending much on sales volumes, proximity to major storage depots, and whether transported

via pipeline, rail or truck to the airport location. Taxes are also higher in certain jurisdictions and private aircraft services may be taxed at a higher level than for commercial users. Fuel prices fluctuate every 14 days, based on net bulk pricing f.o.b. at key locations (such as Rotterdam). Posted Airfield Prices (PAPs) are published for each airport however opportunities exist with certain multiple location suppliers/resellers offering the benefit of bulk contracts (as with airlines operating multiple aircraft fleets), available to management companies or individual operators. Pricing may be different at different FBOs and ramps on an airport, and between different airports routinely used. Commissions may be received by management companies, usually by means of credit notes. Pilots may be incentivised to utilise certain suppliers in preference.

**Maintenance Labour** – Maintenance labour is budgeted on the basis of a man-hour to flight-hour ratio appropriate to the aircraft type, model, complexity, age, check cycle, operating environment, warranty status, utilisation and general condition, and also the experience and efficiency of the maintenance organisation on both the aircraft type and individual unit. We would consider a good well-maintained example of most business jet types maintained by an experienced maintenance organisation knowing the aircraft to require a provision of between 2.0 and 5.0 man-hours per flight-hour. Management companies may benefit from transfer pricing and/or % commission fees.

**Engine Reserves** – Normally based on a contracted 'power-by-the-hour' basis for each engine individually, either with the engine's respective manufacturer or other provider. Rates may be different by geographical location, operating environment and nature of operation in terms of hour:cycle ratio. Includes engine life-limited parts. Where applicable, provision should also be made for thrust reverser overhaul, which will not be covered by the engine manufacturer scheme, and for the APU. Close scrutiny needs to be made to determine other exclusions.

**Parts & Consumables** – An hourly allowance for parts, including brakes and tyres. Appropriate to the type of aircraft as experienced in actual service, adjusted for operating environment, runway length and surfaces. Some programs are available, allowing a fixed hourly payment which may be adjusted by a service provider based on actuals, on a rollover basis. A separate agreement may cover avionics. Commissions and mark-ups to operators are common when recharged by non-program providers.

**Communications** – to cover flight-deck datalink charges, together with cabin internet and satellite telephone costs. Usage-related, with particularly high costs experienced if streaming movies and music, etc. Consider loading movies and music on to individual tablets to reduce streaming charges.

**Navigation Fees** – Levied by national government air traffic control agencies for enroute services rendered. In Europe, collected by centralised *EuroControl* on behalf of member states.

**Landing Fees** – Levied by airports for each landing, based on aircraft weight. Local navigation fees, lighting fees, out of hours fees, noise surcharges, passenger and security fees may also be collected.

**Parking Fees** – Levied by airports or handling agents (either on the airport's behalf, or at a reduced rate if on a handling agent's own ramp for which it has a separate agreement with the airport), based on aircraft size. If a handling agent's ramp, then likely to be negotiable if used regularly.

**Handling Fees** – Levied by FBOs and handling agents for assistance with passenger and baggage handling, use of dedicated lounges, vehicle escorts, apron transportation, liaison with control authorities, submitting slot applications, and coordinating all related airport and ground services. Negotiable at base and for those airports used regularly, particularly where competition exists. May include parking.

**Other, Catering, Crew Expenses, Communications, etc.** - An allowance should be made for passenger and crew catering, depending on trip length and average number of passengers, for crew hotel, food and transport expenses away from base, and local communications. For extended winter operations, a provision should also be made for essential aircraft de-icing.

**Taxes** - VAT and other sales or consumption taxes are applicable in many jurisdictions to certain charges associated with private (i.e. non-commercial) aircraft services, including in some cases fuel and maintenance.

Gary J Palin
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*Gary Palin is an acknowledged industry expert in the field of aviation management, having led the contracting of over 300 aircraft in a career spanning over 40 years in the sector. He has bought, sold and operated most jet aircraft types, including all principal business jet and airline models, and served for many years as Accountable Manager for the fleet operations of complex aircraft across the globe.*

*gary.palin@interaviagroup.com*
*www.interaviagroup.com*