

GOAL CONFLICTS AND TRADE-OFFS BEFORE TAKE OFF

Before take-off, pilots and other aviation front-line staff have to make trade-off decisions in response to goal conflicts.

Guy Malpas gives two examples – turnarounds and refuelling.

Turnarounds

On time performance (OTP), is critical for both passenger appeal and slot and aircraft utilisation. The turnaround is a critical phase in aircraft operation where time can be recovered or lost, affecting OTP. A turnaround utilises several different work teams: refuellers, baggage handlers, cleaners, caterers, engineers, etc. Each team has set tasks, often complicated by unknowns. It is not uncommon for each team to work as silos, happy when their task is completed, with little or no consideration for the aircraft operation as a whole. Occasionally, there have been missions to optimise OTP performance, whereby staff are placed to monitor work teams during a turnaround to assess their performance. This can affect the silo performance mentality as each team tries to complete their task quickly, so as not to have any OTP delay apportioned to them.

Pilots can be a central coordinator during this busy phase and, to some extent, will keep track of activities like refuelling, baggage handling, and engineering, to gauge progress of the turnaround for subsequent OTP. This can interfere with cockpit pre-flight preparation, in the form of interruptions such as noise from caterers in the galley behind the flight deck, engineers coming in and out of the flight deck, or demanding a signature for aircraft

acceptance when 'they' are ready, sometimes with no awareness of, or consideration for, the pilots' activities. This is similar with refuellers.

Pilots must have the ability to deal with many interruptions during the set-up and have measures in place to prevent lapses or errors occurring. This includes chunking tasks together in a logical fashion, whereby one can handle interruptions in between 'chunks'. Sometimes, if demanding situations require, one can 'eject' these teams (engineers, refuellers, traffic staff, etc) from the flight deck, shut the door, and concentrate on the flying task, until the crew have the capacity to deal with each team one at a time. This is another trade-off: it can create friction between cockpit and external teams, but controls stress, allows the crew to focus and get on top of their planning, and ultimately leads to a smooth and controlled turnaround.

Another way of saving time during a turnaround would be to limit the amount of FM programming, i.e., not inserting forecast wind or destination arrival information. This can be done airborne, but can affect aircraft top of climb performance predictions (an issue if there are climb restrictions) or complexity in descent preparation on short sectors where the cruise portion is minimal.



Fuelling

There is pressure on pilots for tighter fuel ordering limits to control unnecessary uplift. Any extra fuel over the flight planned fuel at a given weight will naturally incur a burn-off that directly equates to cost. This has been achieved through several means, including:

- tighter ZFW weight margins that require modifications to fuel uplift and burn
- monthly publishing of a crew's cost to the company of the extra fuel burnt to carry any extra fuel ordered or reductions in fuel burnt when fuel is off-loaded, and
- charts showing historical data of fuel planned, extra fuel ordered by crew, and the subsequent actual fuel burnt in the real operating environment (these have been very useful in giving confidence to crew that the planned fuel load is sufficient for the sector concerned, given the real operating environment).

While these measures are useful to understand cost, they may have a psychological effect on some crew as they feel they are being personally monitored.

Crew can suffer stress over the fuel to be ordered. For instance, if there is a slight drop in aircraft zero fuel weight or the sector short- or mid-range (thus a minor change in fuel load required), and they are running late, common sense may be to keep the original fuel load for simplicity and depart on time. Because of individual crew fuel load monitoring, crew will often report on administrative reports the supposed over-fuelling by refuellers of 100-300kg, losing sight of the fact that refuellers will often over-fuel by 1-200kg due to roll-back of the truck gauges, etc., and other operational factors, such as long taxi times, or sitting on a taxiway with idling engines. This stress and or time taken to calculate fuel to small values can detract from the operational big picture. **S**



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