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The ROI on Pairing and Rostering Optimisers

Making meaningful improvements to crew utilisation



Optimisation vs Automation

As the airline industry prepares to add 24,000 additional aircraft over the next two decades, the number of additional pilots required is reported to be in the order of 637,000 with a further 839,000 cabin crew. This demand for crew will place increasing pressure on airlines to maximise crew utilisation and reduce productivity leakages across the operation.

Increasing complexity in employment contracts and morphing fatigue management requirements ultimately makes productivity leakage more difficult to track. Airline managers require more sophisticated tools to ensure these leakages are tracked and minimised at each step of the planning process.

For well over a decade, optimisation tools in planning have assisted legacy airlines to minimise productivity leakages and improve crew utilisation. However, the cost of these optimisation tools has put them out of the reach of many mid-size and smaller airlines. With merlot.aero, we've set out to provide a cost effective solution and bring optimisation tools back in reach of more airlines around the world.

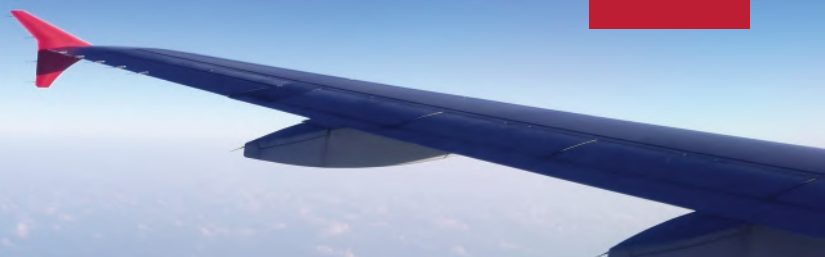
It is important to distinguish between two different tools used often regarded as similar in the planning process: *optimisation* and *automation*. At merlot.aero we define *optimisation* as the process by which you achieve maximum productivity out of the available resources (crew and/or aircraft). Optimisation tools (applications) employ sophisticated mathematical algorithms to solve for an optimal solution based on your airline's criteria (lowest cost, minimum crew, maximum productivity etc).

Automation on the other hand is a simplified process of allocation pairings and or rosters with minimal input from the planning team. Typically, these solutions do not employ the complex algorithms and will not provide lowest cost or minimum crew solutions. They do however, remove planners from having to create rosters manually.

Over the last decade, advances in technology have substantially reduced the cost of optimisation tools, once considered only applicable in legacy airlines.

At merlot.aero we have produced optimisation tools that are now within the reach of small airlines and will provide a realisable benefit with as few as 300 crew.

Optimisation tools for planning typically deliver efficiency gains between 2-8% in crew utilisation. The achieved efficiency will ultimately depend on the airline's costs drivers, number of crew bases, crew employment contracts, and schedule flexibility.



The following example is taken from a regional airline operating with approximately 40 aircraft:

- ✈ 800 crew (flight complement is 1 CPT, 1 FO, 2 FAs per flight).
- ✈ Merlot benchmarking for Pairing Optimisation, achieved an improved Block per Duty of 2.5%, this results in a saving of 16 crew (4 CPTs, 4 FOs and 8 FAs) annually.
- ✈ Approx. 2.5% efficiency improvement:
 - Based on choosing different flight combinations, increasing the average Block / FDP per Duty, by increasing the amount of flying within the created Pairings. For example with an original average Block / Duty of 5hrs, with a 2.5% efficiency gain this increases to 5:07hrs Block / Duty.
- ✈ Approx. 2% crew savings (per position / rank):
 - Based on decreasing the number of Pairing Days in the created Pairings. For example with 100 CPTs, the crew saving realised from the created Pairings have approx. 40 - 45 fewer Pairing Days, which is equivalent to needing 2 less rosters, hence 2 less CPTs (equating to the 2% savings).
- ✈ These are based on an average across a number of airlines, and vary depending on network structure, operation, flight, and schedule type. In some situations we have seen airlines where there is potential for approx. 5% crew savings, and 8.5% efficiency improvement.
- ✈ The above numbers represent the target improvement we would expect the airline will gain from using our Pairing Optimiser, prior to actually benchmarking a potential clients Pairings.



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