

Main assumptions in developing the baseline recurrent training

The baseline is developed for a operator, according to the assumption below.

The airline is not a flight time limited airline, (in other words their pilots before implementing EBT do not reach the maximum yearly flight time hours eg. 1000 in 12 months ORO.FTL.210). For simplicity we assume short-haul.

The airline is a day duty limited airline, in other words the limitation of the pilots is by number of duty days available.

pilots (captains and FO): 1000

instructors/examiners: 100 (indicatively 10% of pilot population)

600 line checks per year for all 1000 pilots which are performed in 600 line checker working days

2800 sim session OPC/LPC per year for all pilots at the company (500 crews in most airlines 4 session per crew); 2000 sessions per crew; coefficient of 1.4 due to the inefficiency;

1 FTE = 180 working days (flying, training)

The crew need to travel to the main basis, where the training is carried out.

Legacy training programme

Development and update of the training programme under the legacy training is 80 working days.

Fees and charges for approval of the recurrent training programme (included in the development of training programme) 8400 EUR

There is annual refresher training for the TRI/TRE is 1 working day.

Annual remunerations

Costs for 1 FTE training manager 200,000 EUR per year

Annual remuneration of instructor/examiner is estimated at 200,000 EUR.

Annual remuneration per pilot is estimated at around 200,000 EUR (full cost for the operator, including gross salary plus the social securities for the operator). It is calculated on the basis of the average remuneration of captain and first officer per year.

Annual remuneration of a trainer performing the ground training is estimated at 100,000 EUR.

OPC/LPC

There are 1 LPC and 2 OPC per year per crew and 1 training session per year per crew. Every 6 months 2 days training and checking: 1 session (1 day) LPC and OPC combined and 1 session of training (1 day); Once per year: 2 session (2 days): 1 session in OPC and 1 session of training. **In total, there are 4 sessions per year equivalent to 4 working days.** For 3 years, it is considered that the baseline operator is doing 48 hours simulator per crew.

At the operator's main basis/HQ premises are the simulators. There are costs for travelling of the pilots to the main crew base/HQ. 50% of pilots are travelling to the main basis/HQ for simulator exercise. A coefficient of 0.5 is considered to capture this assumption. For the sake of the exercise, it is assumed that the HQ is in UK. The per diem rate is taken for UK which is currently 280 EUR per day.

The per diems are for 8 working days per year to cover 4 days trip for the LPC/OPC and training sessions (one day before and one day after) per year and 4 working days for the LPC/OPC/training per year per pilot.

In legacy training: TRI/TRE does OPC/LPC every 6 months 2.1 days. In total, they are engaged for 4.2 days per year per pilot. Reason: the TRE need to do right (either) hand seat qualification and other type of courses.

Ideally when OPC and LPC are rostered, 1 TRI/TRE does OPC and LPC in 2.1 days every 6 months 4 days in total per pilot. In reality the FC are coupled for the OPC and LPC. If the people are coupled within the same day 2 pilots do the OPC and LPC. Therefore a coefficient of 0.6 is considered.

The cost for simulator per session is 1200 EUR per crew.

Line check

Annual remuneration of captain, performing the line check is estimated at 200,000 EUR.

Ground training

Ground training is 1 day per year per pilot.

A trainer, conducting ground training is involved 1 day for 4 Pilots. For 1000 pilots trainers are engaged 250 working days.

The per diems for travel to the main base for the ground training is 3 days per pilot per year (incl/ 2 days for travelling per year per pilot/FO and 1 day for training). 50% of all pilots are travelling to the main base. Coefficient of 0.5 is used to capture that assumption.

Remedial training for OPC/LPC is provided to 2.6% of the pilots/FO who failed in OPC and LPC checks, e.g. 26 pilots.

Remedial training for line check is provided to 0.25% of the pilots/FO who failed in line checks, e.g. 2.5 pilots of all 1000 pilots. Since it is negligible, it is not considered in the analysis.

After the remedial training, pilots pass OPC, LPC.

It is assumed that the pilots in remedial training need to fly to the main basis to do the OPC/LPC.

Main assumptions in EBT

Preparatory costs

Operator is using an external consultant to help develop the EBT competency framework, to develop the training programme and to train EBT manager and instructors for EBT (around 20 days)

EBT training of a training manager is 20 days (one-off).

Development of EBT training programme by the manager is 100 days (one-off).

Update of EBT training programme per year 80 days and is done by the EBT training manager (recurrent cost) and is the same as for the legacy training. No changes.

CA fees for approval of EBT programme are the same as for legacy training (8400 EUR). No increase is expected. They are paid annually.

Costs for 1 FTE EBT training manager is the same as for the legacy training (200,000 EUR per year).

A consultant is hired to train instructors to deliver EBT training: each trainee/instructor is trained for 3 working days. 1 day training for the consultant costs 1300 EUR. All 100 instructors are trained for 30 days.

Instructor wage is 200 000 EUR (including gross salary and social securities).

The instructors/TREs are engaged in 4 days for EBT training (3 days training and 1 working day competency assessment (one-off costs). These days are calculated as part of the EBT costs, because they refer to the alternative occupancy of the TRI/TREs (instead of providing instructions/examining, they are engaged in training).

Annual refresher training for the EBT instructor/TRE is 1 working day. (recurrent cost) and is the same as for the legacy training. No change.

Purchase of assessment tool (IT tool: Electronic reporting/Statistical analysis) for EBT training (for safety reporting programmes, monitoring of pilot performance) costs 100 000 EUR. One-off cost.

Costs for maintaining licences for IT tool are 10 000 EURO for the operator.

Costs for OPC and LPC are the same as in the legacy training.

Benefits EBT

Failure rate is decreased progressively, but the first 2 years in the EBT implementation they remain the same as in the legacy training (2.6%).

Saving due to decrease in % of pilots failed in OPC/LPC: Saving in daily wage of flight crew for the time that he/she does not fly.

Line check (after 2 years of EBT implementation an operator should be allowed to extend the line check): a pilot's line check requirement is reduced from 1 per year to 1 every two years

Ground training: Safety equipment procedure (SEP) training: A pilot's SEP training requirement is reduced from 1 per year to 1 every two years. The benefit is saving a daily wage of the flight crew. Less CRM training is expected due to the integration of non-technical competencies in the EBT programme (1 day per pilot/year to 1 day pilot/3 years).

Indirect saving (flexibility): A reduction in pilot workload due to flexibility to run SIM away from the peak flying months. The benefit is the 1% of the annual wage of a pilot saved, multiplied by the total number of the pilots.

The 1 % efficiency is an estimated figure and it is based on the following:

1- simulators in EBT are made between October until April (EBT baseline)

2- the airline has a light roster in winter and heavy roster in summer (eg. In winter it flies 800 flight a day and in summer 1700 flights a day)

In summer the airline has a constrain of number of days their pilots are available to fly.

Assuming a

1000 pilots group (500 Capt/500 Fo)

And provided they perform 190 flying duties days a year

No holidays are taken in summer. It means

In summer the pilots perform 110 duty days

And in winter 80 duty days

After the implementation of EBT baseline and provided the 4 simulators are done between October and May (8 months)

Means that between June to September you have available 2 duty days more in some of the pilots work force (those pilots that made their sim between June to September).

We assume that from June to September the number of sims performed in a pilot workforce of 1000 pilots is 300 sims (50 every 6 months, probably is more but to be conservative we assume 50 sims (Capt/Fo) a year therefore around 300 from June to sept)

Total available duty days in summer (6 months) is: $110 \times 1000 \text{ pilots} = 110\,000$

Increase of duty days = $300 \text{ sims} \times 2 \text{ days} = 600 \text{ days} \times 2 \text{ pilots} = 1200 \text{ duty days}$

Improve efficiency: 1,09%

That

efficiency is applied to 10% of pilots that would be available to fly instead of going to sim.

CBA model

The model is prepared for 10 years' period in order to capture the different distribution of the costs and benefits over the time.

The discount rate is 4%, applied according to the European Commission guidance for conducting CBA (http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/cba_guide.pdf)