Training Innovation in **Ryanair**

Never short on innovative ideas, Ryanair has integrated that approach into the Training Department, which has helped the company to grow safely from operating just 27 B737 200's to managing the current fleet of 400+ B737 800 NG's. **Chris Long** finds out more.

This rate of growth has been challenging for the Training Department, and it is impressive that in doing so they have kept the internal supply chain working efficiently while at the same time providing very competent pilots whose professionalism is respected should they choose to move on from Ryanair.

The reach of the influence of the Ryanair training programmes extends well beyond their own needs, as they are happy to share the tools available with the training industry in Europe and beyond. Examples of this are the highly effective operational flight management training class module that all Ryanair command upgrade students undergo. Students are paired off as a crew and while under the intense scrutiny of their command upgrade classmates, manage a theoretical scenario that is facilitated by an experienced TRE. Students are required to manage normal and non-normal scenarios in real time. This training is highly regarded by students and is an invaluable learning tool before commencing FSTD training.

Controlled Training

The most prominent instance of embracing new technology and driving innovation is in its current and planned use of FTD/FNPT II FSTD's. Ryanair has purchased a significant number of these devices which have been initially qualified as FTD 1/FNPT II's. They are currently being upgraded to FTD 2 standard.

The devices are manufactured by Multi Pilot Simulations (MPS), a Netherlands-based company whose founder, Dick Verburg, in a previous life, designed the well-known Compass Aptitude Evaluation System. Further, he was a founding member of EPST, the well regarded Dutch ATO.

Dick's vision was to provide high quality training devices at FTD 1 qualification standard knowing that an FTD 1 can range from representing one specific system of the aircraft type it is simulating to 100% of aircraft systems with high fidelity visual and feel systems. MPS's ambition is to create a full flight simulator (FFS) experience in a fixed base device. Thanks to the quality of these devices, Ryanair has been able to integrate them into traditional areas of pilot training. Using the device's FNPT II MCC qualification, Ryanair deliver an enhanced MCC course which is integrated into its Boeing 737-800 type rating. As an FTD 1 it provides an excellent learning tool in the type rating whether that course is integrated with the enhanced APS MCC course or not. Other non-regulated but traditional uses of the device include re-familiarization training for pilots who have been away from flying duties for weeks or more, Line Engineer Training where technical personnel learn systems and procedures that are appropriate to their CAMO, and Ryanair's Dublin-based FTD is used in its extensive pilot recruitment and assessment programme.

This is all very conventional so far, however now we get to the interesting bit. Ryanair has developed what has been described as a "light bulb" moment in pilot training. The airline's training policy is formulated from its safety management system, along with knowledge acquired through its increasing involvement in EASA rule making groups, advisory boards and other professional entities, and highlights one of the great challenges facing aviation safety. This is the ability of

Above
Ryanair currently operates a fleet of over 400 B737 800 NG aircraft.
Image credit: Ryanair.

a multi pilot crew to cope with the unexpected and to remain resilient in the application of previously trained knowledge and skills, ensuring a safe outcome.

Industry is well aware that current regulation is structured and driven by needs based on statistics from a previous era. EASA and industry are working together to overcome this legacy of misdirected training requirements imposed on operators and training organisations. Training courses such as the MPL, the very welcome Guidance Material relating to the introduction of Mixed Implementation of Base Line EBT in ORO.FC.230 and the soon to be published Airline Pilot Standard (APS) MCC course are good examples. Thanks to pressure from industry EASA has stepped back from its decision to cancel the latter phases of RMT 0599 thereby providing for the introduction of Evidence Based Training throughout all phases of pilot training.

Ryanair's approach to the need to move away from legacy training is to create more opportunities for its pilots to train in high quality FSTD's. Working closely with MPS, Ryanair has developed a suite of software products that enable pilots to access the FTD1/FNPT II devices in carefully controlled circumstances.

Ryanair and MPS have developed a booking system which allows crew to book any FTD in the fleet at no cost to them. In the FTD/FNPT II they will practice their knowledge and skills that are required for safe operation of the Ryanair Boeing 737-800. Comprehensive guidance notes and study guides are available to crews on the airline's pilot intranet. These notes assist crews in preparing the simulator and their session. Once the booking is cleared by administration, the crews can access the device in one of a growing number of training centres throughout Europe.

Currently these locations are Dublin, East Midlands and Milan Bergamo. Stansted and Madrid will soon follow and the plan is to locate these devices in training locations that are on Ryanair's base network structure. This investment will recognise the commercial development of the Company and the need to disperse its training assets closer to where their pilots are based.

When the crew access the simulator, they are presented with a locked down or minimised Instructor Operator Station (IOS). This is one of a number of control measures that are designed to ensure appropriate general and professional behaviour while the students are unsupervised in the device. The pilots enter their crew code and select from a drop-down list of training programmes that have been conceived, constructed and trialed by Training Department pilots. These programmes are relatively short, rarely lasting more than an hour or an hour and twenty minutes, and are focussed on specific knowledge or skill challenges. Sessions include normal flights from Dublin to Stansted and return with no non-normal procedures required. Other LOFT sessions will introduce non-normal situations but these are measured and are specifically designed to allow pilots to develop their core competencies such as Application of Procedures, Leadership and Teamwork, Workload Management, Decision Making and Flight Path Management-Automatic.

Above **Ryanair and MPS have developed a booking system which allows crew to book any FTD in the fleet at no cost to them.** Image credit: Ryanair.

Startle effect can be introduced successfully into these non-normal scenarios as the programmes are managed remotely from East Midlands and can be changed very easily. This ability to be nimble in the deployment of training scenarios gives Ryanair some ability to counter the instantaneous sharing of simulator scenarios amongst aircrew that is a natural consequence of our highly connected world. Ryanair is able to respond quickly to events and following a number of unfortunate go around incidents involving other airlines and types, the Training Department produced a programme specifically designed to give pilots practice in go-arounds from a variety of energy states and from a variety of configurations.

On-screen instructions guide the crew through a very simplified simulator activation and cockpit preparation process. In simple terms, the crew has to select a programme, get the cockpit ready and press a big START button. From that moment the session is being timed and five minutes before a generous allocation is reached, the cockpit clocks start flashing and when the allocated time is up the simulator will freeze automatically and will need to be reset by the crew. A further control measure is the availability of CCTV.

Interestingly, Ryanair has successfully deployed in the FTD the same Flight Data Monitoring Class 3 Events that are used in the aircraft fleet in its Operational Flight Data Monitoring Programme. Additionally, the Boeing structural limitations have been inserted into the FTD's operation so that if a crew were to try to barrel roll a

737-800 the simulator would freeze, a red screen would be presented to the crew and a reset would be required.

Ryanair neither has the desire nor the ability to monitor each and every Class 3 OFDM event or associated video footage. However, if a burst of OFDM events and/or a Boeing structural limit was breached, an automatic report is sent to management and the circumstances would be looked into further. To date, only one crew out of the 2,340 that have used Controlled Training has had to be spoken to. For the record, their behaviour was put down to the exuberance of youth.

STAR Report

MPS and Ryanair have developed an automatic reporting system that collects data from the FTD session, collates it and sends it automatically to the pilot's Ryanair email account. The report contains illustrated data relating to the pilot's performance during take-off, climb, approach and most importantly go-arounds. Time and distance to gear up, initiation of flap retraction, acceleration and eventual establishment of clean configuration can be measured. Further, these parameters can be plotted against the "perfect go-around" so that pilots can measure themselves against that datum. Another feature of the STAR Report is that approach and go-around parameters are compared to the limitations associated with LST and LPCs. Pilots are able to review their performance and devise a strategy to improve before their next sim check.

OFDM Replay

The ultimate test of a crew's core competencies is, of course, during operational line flying. Ryanair crews are rarely challenged with technical events, but occasionally circumstances arise where the Safety Management system generates awareness of an event that would merit further investigation. Ryanair, MPS and Teledyne (Ryanair's OFDM partner company) have co-operated to enable the FTD to provide a remarkable training facility. The system assists the crew in learning from the event. It provides awareness to the SMS and the Training Department about events that might merit further exploration in recurrent theoretical and simulator training.

On request from the Ryanair Safety Services Office, Teledyne will isolate the OFDM data from a specified flight for a specified timeframe. This data is provided to the Safety Services Office in confidence and the crew are invited to come to a Training Centre with an FTD where the data is injected into the FTD. The event is then replayed with the crew at the controls. The data transfer enables flight control and thrust lever movement. Engine Displays as well as the PFD and ND and are reproduced faithfully to replicate and replay the events that took place on the aircraft.

The reply session is facilitated by a Safety Service Office pilot who can create weather conditions similar to those at the time of the event. A selection of fast-forward reverse and pause tools are available on the IOS. Following the replay session, the crew are provided with an SFI who has been briefed on the general circumstances and who has been tasked with devising a specific evidence based training programme for that crew so that the relevant core competencies can be refreshed.

Conclusion

Training in the civil aviation sector is necessarily dynamic. The fundamentally conservative nature of the business, properly driven by safety imperatives, can be a brake on the adoption of radical changes and new technology. The Ryanair approach shows that selective embracing of such technology, coupled with innovative thinking, can produce training systems best suited to a connected and self-reliant pilot population. By closing the feedback loop the effectiveness of that training and its enhancement of safe operation can be proven, and results in a much-improved training outcome. cat