3rd European CDO Workshop

18-19 March 2013
EUROCONTROL HQ, Brussels
Report and Actions
3RD EUROPEAN CDO WORKSHOP
18-19 MARCH 2013
EUROCONTROL HQ, BRUSSELS

REPORT AND ACTIONS
Part 1 - Background

1. European CDO implementation is Stakeholder driven and reflects the strong desire that there should be a harmonised European response to the challenges to the industry emanating from noise, environmental and fuel issues. CDO implementation is seen as one powerful and available mitigation measure to these issues and EUROCONTROL has been tasked with providing lead support to the initiative. The European Network Operations Plan (NOP) acknowledges that environmental restrictions at most European airports result in a negative impact on the optimum network performance and it also acknowledges that the widespread implementation of the CDO technique is a major mitigation measure which offers an early opportunity to minimise the environmental impact of aircraft operations. It concludes that the rapid deployment of CDO throughout Europe, even on a limited basis (limited by hours of operation and commencement height), will empower the network to respond to the environmental challenges and requires that the EUROCONTROL CDO team achieve a target of 200 European airports facilitating CDO by end of 2014.

2. In addition, the European ATM Master plan states that amongst the Deployment Baseline changes, CDO must be implemented if the Essentials of Step 1 SESAR are to be realised. Any delay or inactivity in CDO implementation will have a major adverse affect on the activities necessary to implement the Master Plan. Thus, it is vital to establish widespread CDO throughout Europe in preparation for the establishment of the 4D trajectory that is fundamental to the successful deployment of SESAR.

3. Full time, Top of Descent (TOD) CDO is obviously the ultimate aim. However, Stakeholders are realistic and understand that in the congested confines of the European airspace network, the only way to achieve this aim is to take a step-by-step approach and to implement harmonised, capacity-friendly versions of the CDO technique throughout Europe on a limited basis now! Future changes to the airspace architecture and the widespread availability of harmonised support tools for controllers, which will ensure lateral and/or vertical segregation without impeding the optimum profile, will allow CDO to evolve to usage for longer periods of the day and commence from higher levels.

4. However, even the deployment of widespread operations on a limited basis needs certain issues to be resolved to enable harmonised implementation to be taken forward. The issues, which have been identified by the Agency CDO implementation team, concern: harmonisation; phraseology; publication; compliance with CDO facilitation; and ATC/pilot CDO awareness and training. The team have been supporting the implementation programme for over 5 years, in collaboration with stakeholders and partners including ECA, IFATCA, IATA, IACA, ERAA, ACI-EUROPE and more recently, SESAR.

5. As a result, the 3rd CDO workshop took place on 18-19 March 2013 in EUROCONTROL HQ Brussels, specifically to address these issues. It was aimed at all partners who have a responsibility for developing the CDO concept in Europe (Air Navigation Service Providers, regulators, air traffic controllers, pilots, aircraft operators, aircraft manufacturers and airspace designers). The primary aim of the workshop was “to reach a consensus on the actions required to develop and drive European CDO implementation further forward”. The workshop was determined to be a decision-making quorum, justified by the level and range of the attendees.

6. Based on presentations by guest speakers and Network Manager experts followed by enthusiastic break-out sessions, the workshop’s main objective was to formulate draft policy based on input and views from all communities. This draft policy will then be progressed through relevant bodies (ICAO, etc) to enable/support further European CDO implementation in a harmonised approach.
## Part 2 – List of Presentations

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### Day 2

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Part 3 - Keynote Speech

1. The keynote address was given by Mr Joe Sultana, Chief Operating Officer, Directorate Network Management, on behalf of the Director General EUROCONTROL. He thanked everyone for the excellent attendance and said it indicated the importance of CDO within Europe, a view that both he and the Agency endorsed.

2. Mr Sultana explained that EUROCONTROL is tasked with supporting the CDO implementation programme and that the CDO implementation programme continues to be successful and to date, over 115 airports offer CDO on a full or limited basis. The workshop was seen as a vital element in taking that programme forward and it should produce concrete proposals to enable the formulation of future CDO planning and policy.

3. In his address Mr Sultana also:
   i. confirmed that the environmental, noise and fuel efficiency drivers for CDO facilitation remain extant and are as important as ever
   ii. confirmed that CDO implementation is an integral and fundamental requirement, necessary to empower the Network Manager to respond positively to the environmental challenges that have an adverse impact on network operations and airline operating costs.
   iii. explained that widespread European CDO facilitation is also a fundamental baseline requirement in SESAR planning. Without European-wide, harmonised, capacity-friendly, top-of-descent CDO facilitation, the ultimate aim of 4-D operations cannot be realized.
   iv. explained that whilst universal TOD is obviously ultimate aim, the only way to achieve this aim is to progressively implement harmonised, capacity-friendly, limited versions of the CDO technique throughout Europe (that is, limited by hours of operation and commencement height).
   v. explained that the widespread deployment of limited CDO is facing issues that need to be resolved.
   vi. confirmed that the issues concern harmonisation, phraseology, publication, compliance with CDO facilitation and ATC/pilot CDO training.
   vii. confirmed that the workshop was acknowledged as a decision-making quorum and the turnout justified this view.
Part 4 - Issues and Actions : Results from the Break-Out Sessions

Note:

The workshop placed a number of actions on EUROCONTROL which are listed in the paragraphs below. However, it must be noted that since the workshop, the decision has been taken that the CDO implementation project within EUROCONTROL will cease at the end of 2013 at which time, the EUROCONTROL CDO implementation team will be disbanded.

1. Predictability

It was unanimously agreed that predictability is the key requirement and that accurate and early Distance To Go (DTG) information is fundamental to a successful and efficient CDO. The 2 methods of enabling facilitation are:

i. Closed Path (CP) Arrivals:

a. The most efficient way to facilitate CDO, ensuring absolute predictability and conformity.

b. However, it is acknowledged that there are possible capacity issues inherent with all CP arrivals that would preclude the use of them during busy traffic periods or in congested airspace. These capacity issues are a facet of any currently available CP procedure and are NOT caused by the CDO itself.

c. CP CDO facilitation may not allow for tactical shortcuts and this should be well understood by both ATC and pilots.

d. The general consensus was that widespread European deployment of efficient, capacity-friendly SID/STARS is still some way from realisation.

ii. Open Path (OP) Arrivals

f. OP facilitation occurs when ATC uses radar vectoring to sequence and separate arrivals – generally during periods of traffic density or in areas of airspace design that preclude use of CP methods.

g. Radar vectoring does NOT preclude enabling CDO although it is acknowledged that OP facilitation will probably not allow for the most efficient arrival profile.

h. OP CDO facilitation probably requires some form of ‘trigger’ by use of associated phraseology (see item 2 below) and/or CDO note on charts (see item 4 below).

ACTION: EUROCONTROL tasked to continue to publicise CDO and the essential requirement of accurate and early DTG.

2. Phraseology

There was general agreement that CDO specific phraseology is probably required for ‘trigger’ purposes where CDO facilitation is not otherwise inherent in the arrival. There was agreement that phraseology is dependent on how CDO is delivered as follows:

i. CP Arrival

a. CDO specific phraseology will not be required if the STAR is designed efficiently.
Note: there was unanimous agreement that ALL SID/STAR phraseology needs urgent global harmonisation

ii. OP Arrival

b. Simple and harmonised phraseology is required to ensure CDO compliance.

c. Until a simple and harmonised phraseology is agreed, the phrase “descend when ready”, which is ICAO approved and in common usage, was considered to be the most appropriate phrase for medium/high level facilitation. It should include a target (eg 'to be level by/at') to assist in planning and to ensure compliance.

d. Lower levels of facilitation - until CDO becomes the universal 'norm' (eg when DTG is routinely transmitted) it was felt that a ‘trigger’ phrase is required as a CDO prompt. ‘Continuous Descent Approved’ is currently used by 2 ANSPs and was considered to be the most appropriate phrase.

ACTION: EUROCONTROL tasked with:

A. Progressing phraseology requirements (para’s c & d above) and ensure that the CDO ‘trigger’ element is understood and documented.

B. Re-emphasising that ALL SID/STAR phraseology needs urgent global harmonisation

3. Airspace and Procedures Design

It was acknowledged that CDO will be at its optimum with future airspace and procedure design development. The workshop was unanimous in agreeing that all future STARS must be designed with inherent or embedded CDO and that they should be designed with ‘at or above’ height windows to allow maximum descent efficiency for the maximum number of aircraft types. With regard to current CDO STARS it was agreed that:

i. ANSPs, in collaboration with airlines, should review current CDO STARS to ensure that the STARS are enabling maximum efficiency, within the current airspace structure

ii. if the reviews determine that inefficiencies do exist (eg the artificial lengthening of the approach path to enable subsequent CDO), then ANSPs redesign the STARS to remove the inefficiency

iii. the STARS in both 3.i and 3.ii above must be developed in line with relevant noise requirements.

ACTION: EUROCONTROL tasked with:

A. Ensuring that all ANSPs are aware that all future STARS must be designed with inherent or embedded CDO and that they should be designed with ‘at or above’ height windows to allow maximum descent efficiency for the maximum number of aircraft types.

B. Requesting ANSPs to collaborate with airlines to review current CDO STARS to ensure that the STARS are enabling maximum efficiency and where inefficiencies are found, to redesign the STARS to remove the inefficiency, in line with relevant noise requirements.
4. **Charting and Documentation**

It was agreed that notwithstanding any reference to CDO in AIPs (which, the workshop acknowledged, should be a common standard), CDO availability should be indicated on Arrival Plates to provide another prompt for pilots. With regard to CDO charting it was agreed that:

i. the CDO indication should be both harmonised and obvious and to enable these requirements, a standard template should be considered

ii. no vertical profile picture was required.

**ACTION:** EUROCONTROL tasked with progressing, through the correct working arrangements, the workshop decision that CDO availability should be indicated on Arrival Plates in accordance with para 4 above.

5. **Communication**

There was a strong feeling in the workshop that there are currently limited opportunities and practices for liaison and communication between line pilots and controllers. This has had a detrimental effect on the understanding that pilots and controllers have about each others requirements. This undesirable situation is being exacerbated by the abbreviated and specific training methods that are common in current pilot and ATC training regimes, which allow less time, if any, for any ‘cross-role’ learning. As a result, inefficiencies in the Air Traffic system go unnoticed and rectification cannot be achieved. There is no doubt that this has an adverse affect of CDO implementation and facilitation. Moreover, the workshop thought that understanding amongst all stakeholders with regard to others roles and responsibilities was severely limited and highlighted possible ATC issues resulting from a limited understanding of both modern aircraft energy management and current FMS operation amongst controllers. The workshop acknowledged that monetary and time considerations were inevitable; however, to address the problem of communication breakdown, it was agreed that:

i. all stakeholders should make every effort (particularly at local level) to develop lines of communication and liaison to enable a common understanding of each others roles and requirements – this is particularly relevant to pilots and air traffic controllers

ii. this communication could be through formal processes (forums, workshops etc) or by informal means by way of exchange workplace visits etc.

iii. ANSPs ensure that controllers are aware of modern aircraft energy management issues and have a basic understanding of current FMS operation.

**ACTION:** EUROCONTROL was asked to investigate methods of publicising amongst all stakeholders, the contents and relevance of para 5 above.

6. **Awareness**

Whilst it was acknowledged that the benefits of CDO have been well documented and well advertised, there was strong support for the suggestion that all stakeholders, but particularly pilots and controllers, should be subject to an intensive European wide CDO-benefits awareness campaign. Such a campaign would help drive forward the widespread development of a CDO ‘culture’ throughout Europe. The campaign should be developed by Stakeholders with EUROCONTROL support and could ensure that (amongst other things):

i. all stakeholders are aware of why CDA became CDO
ii. all stakeholders are aware of all documentation relating to CDO (ICAO Doc 9931, European ATM etc)

iii. at a local level, all stakeholders but particularly pilots and controllers are aware of what fuel, emissions, noise etc is saved on each approach that is conducted under CDO

iv. CDO becomes part of airline company culture and is included in SOPs

v. the noise-reduction benefits of CDO remain highly visible to stakeholders.

7. In addition, it was felt that the ‘Descent Phase’ of a flight is currently the phase of flight that affects efficiency to the greatest degree and is thus causing most efficiency issues for airlines. It was felt that the relevance of this phase of flight, with its obvious connection with CDO, is not always fully understood by Stakeholders, especially those who have decision-making powers with regard to TMA/airport airspace re-design.

**ACTION:** EUROCONTROL was asked to lead the development an intensive European wide CDO-benefits awareness campaign as outlined in para 6 above.

8. **Timeline on progression of CDO and Workshop Actions**

There was unanimous agreement that the European CDO implementation programme was a success and because of this, EUROCONTROL should continue to support the programme in the future. To continue driving the programme forward, it was requested that:

i. EUROCONTROL should produce a CDO implementation timeline and plan based on the decisions and actions emanating from the workshop

ii. EUROCONTROL formulate draft policy based on input and views from the Workshop. Once the policy was formally agreed, EUROCONTROL should progress it through relevant bodies (ICAO, etc) to enable/support further European CDO implementation in a harmonised approach.

iii. Future meetings and workshops were essential, using the break-out session scenario. EUROCONTROL were asked to arrange these events and inform asap the date of the next (follow-up) event.

**ACTION:** EUROCONTROL were asked to:

A. Confirmation of continued EUROCONTROL support for the European CDO implementation programme.

B. Progress in line with para’s 8.i, 8.ii and 8.iii above.

**Part 5 – Other Business**

1. **HungaroControl ‘MergeStrip’ Tool**

Mr Gabor Vass from HungaroControl gave a presentation on the the MergeStrip tool that HungaroControl is developing. The tool is designed to assist controllers in CDO sequencing and separation and is in the final stages of development. There was considerable interest in this tool amongst the workshop attendees. Requests for further information on this tool should be addressed to Mr Vass himself at: vass.gabor@ferrumnet.com