

## EUROPEAN AUTHORITIES COORDINATION GROUP ON FLIGHT DATA MONITORING (EAFDM)

SAFETY PROMOTION Good Practice document

# GUIDANCE FOR NATIONAL AVIATION AUTHORITIES SETTING UP A NATIONAL FLIGHT DATA MONITORING FORUM



# **Record of versions**

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2	<ul> <li>09 March 2016</li> <li>The main changes to the guidance are the following: <ul> <li>take into account the new regulatory framework for air operations, occurrence reporting and safety management;</li> <li>reflect the change to the objectives of Safety Action MST.003 of the European Plan for Aviation Safety (EPAS);</li> <li>better take into practical experience of EAFDM Members with their respective FDM forums;</li> <li>Simplify Annex 1.</li> </ul></li></ul>

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# Note

This document was produced by the members of the European Authorities coordination group on FDM (EAFDM). Information on the EAFDM can be consulted in EASA website.

The EAFDM is a voluntary partnership between the European Aviation Safety Agency (EASA) and National Aviation Authorities of EASA Member States, with the following objectives:

- to foster actions by NAAs which contribute to improving the implementation of FDM Programmes and to making FDM programmes more safety effective;

- to contribute to a high and uniform level of safety in Europe; and
  - to contribute to a better overview of air transport operational safety in Europe.

The experts that contributed to the second edition of this document were from the following authorities:

- Austro Control (Austria)
- BCAA (Belgium)
- TraFi (Finland)
- DGAC (France)
- IAA (Ireland)
- CAA (Iceland)
- ENAC (Italy)
- CAA (Latvia)
- ULC (Poland)
- INAC (Portugal)
- AESA (Spain)
- FOCA (Switzerland)
- CAA (United Kingdom)
- EASA

According to its terms of reference, the EAFDM is a voluntary and independent safety initiative. **Therefore this** document should not be considered as an official guidance of any of the authorities taking part to the EAFDM.

This document is intended to be updated by the EAFDM when necessary. If you would like to give your comments or a feedback on this document, please write to **fdm@easa.europa.eu**.

## **Executive Summary**

This document is a guidance intended for European National Aviation Authorities on establishing a national forum dedicated to Flight Data Monitoring.

**Flight data monitoring (FDM)** can be a powerful tool for an operator to improve and monitor its operational safety. Although it is only mandated by European air operation rules for aeroplanes (over 27000 kg maximum certificated take-off mass), it has proved to be very beneficial for operators of lighter aeroplanes and helicopters.

NAAs are responsible for the oversight of their national aircraft operators including their FDM programme. Beyond this oversight function, NAAs should play a decisive role in the promotion of FDM in the framework of their SSP. In addition, FDM data contain a wealth of information which could help a NAA to better assess safety issues of national concern.

For this purpose, an open dialogue on FDM related matters involving safety experts of operators' and NAAs has proved to be beneficial for all parties.

This has been recognised in the Safety Action MST.003 of the European Plan for Aviation Safety:

"States should set up a regular dialogue with their national aircraft operators on flight data monitoring (FDM) programmes with the objectives of:

- Promoting the operational safety benefits of FDM,
- Fostering an open dialogue on FDM programmes that takes place in the framework of just culture,
- Encouraging operators to include and further develop FDM events relevant for the prevention of RE, MAC, CFIT and LOC-I, or other issues identified by the State Safety Programme."

The **European Authorities coordination group on FDM** (EAFDM) would like to provide advice for the creation of a *national FDM forum* to EASA Member States, and therefore it decided to gather the experience of its members and make it available.

This guidance is intended to help an NAA in building up, step-by-step, a *national FDM forum*. It aims at addressing the main questions that may arise during this process.

# **Definition & acronyms**

The following definitions are provided for the acronyms that are used in this document:

ANSP	air navigation service provider			
CAT	commercial air transport			
CFIT	Controlled flight into terrain			
EAFDM	European Authorities coordination group on Flight Data Monitoring			
EASA	European Aviation Safety Agency			
EPAS	European Plan for Aviation Safety			
FDM	Flight Data Monitoring (also designated by Flight Data Analysis in ICAO documentation, and similar to Flight Operations Quality Assurance in FAA documentation)			
LOC-I	Loss of control in flight			
MAC	Mid-air collision			
MS	EASA Member State			
мстом	Maximum certificated take-off mass			
NAA	National aviation authority of an EASA Member State			
RE	Runway excursion			
SMS	Safety Management System			
SOP	Standard operating procedure			
SSP	State Safety programme			

# I. Objectives of a regular dialogue with operators on FDM

## 1. Background

**Flight Data Monitoring** (FDM) is a proactive tool for gathering and analysing data recorded during routine flights to improve aviation safety (e.g.:operating procedures, flight training, feedback to other stakeholders). Together with a reporting system it is a vital part of a well-functioning Safety Management System (SMS) and acts as one of the main sources for the collection of data on hazards and risks.

The data collected by an FDM programme are primarily of benefit to the operator. From another perspective it is desirable to use that data in a wider context in order to share the benefits among the aviation community. A better understanding of known or new top level issues identified by operators' FDM programmes would also be beneficial for the **National Aviation Authorities (NAAs) of EASA Member States (MS)** and other stakeholders. This could become a powerful safety enhancement opportunity in future interactions between stakeholders' SMS and NAAs' **State Safety Programmes** (SSP).

With this objective in mind, the **EAFDM** encourages MS NAAs and industry to initiate and maintain a regular dialogue on FDM to share such important information in order to improve aviation safety. In the following, this regular dialogue is designated with the terms "**national FDM forum**".

## 2. General concept of a national FDM forum

The general idea behind a national FDM forum is that of a regular dialogue primarily between a NAA and the aircraft operators under its oversight:

- improve the implementation of FDM programmes, with the objective to bring safety benefits to participating operators, and
- allow the NAA to better achieve its national safety objectives, and therefore to better manage its SSP.

This corresponds to objectives stated in Action MST.003 of the EPAS.:

'States should set up a regular dialogue with their national aircraft operators on FDM programmes, with the objectives of:

- Promoting the operational safety benefits of FDM,
- Fostering an open dialogue on FDM programmes that takes place in the framework of just culture,
- Encouraging operators to include and further develop FDM events relevant for the prevention of RE, MAC, CFIT and LOC-I, or other issues identified by the SSP.'

The forum should be moderated by NAA staff members (or could be co-moderated together with an operator). Participation should be submitted to signing a confidentiality agreement.

## 3. Expected benefits

From the perspective of the NAA, it is very important to monitor the evolution of the main national safety issues. Information coming from the national FDM forum could (in accordance with the confidentiality agreements of the forum) complement attendees' individual management systems.

#### A national FDM forum would, on a primary level, be beneficial to:

- improve the implementation of FDM programmes, with the objective to bring safety benefits to participating operators;
- allow the NAA to better achieve its national safety objectives, and therefore to better manage its SSP;
- explore analysis techniques; and
- share best practice on proper integration of FDM with the SMS and with the flight crew training programme.

On a secondary level, the SMS output of other stakeholders (such as airports, Air Navigation Service Providers, maintenance organisations, etc.) could benefit. The FDM forum may also be used to promote the implementation of FDM programmes for aircraft other than aeroplanes with an MCTOM of over 27 000 kg (see II.4).

#### Note:

As the participants from NAA and operators alike are expected to be safety analysts and FDM experts, it would be a good opportunity for them to gain additional experience (analysis techniques, statistical knowledge, data mining principles, data process schemes).

In the longer term, monitoring FDM events related to common risks identified by the forum could be set up, to support specific objectives. This may include the production by participants of summaries and statistics of these FDM events, which if properly de-identified, could be shared between participants. Among the FDM events of interest, those related to the EPAS or the SSP should be promoted by the NAA.

## 4. The "safety culture" presupposition

In the field of FDM, a good **safety culture**<sup>1</sup> is of utmost importance. The atmosphere of trust in which people are encouraged to share safety information is the major key for a functioning SMS.

A good safety culture is also essential for a successful national FDM forum. The promotion of a safety culture at all levels of the NAA, including highest level (for instance demonstrated by an official statement<sup>2</sup>) creates a favourable framework for the development of safety promotion initiatives such as a national FDM forum.

In addition some precautions need to be taken:

- The independence of the NAA staff moderating the forum from NAA oversight functions should be guaranteed, to the extent possible;
- The meetings shall be held under agreed confidentiality conditions. The documents and data exchanged inside the forum shall also be protected by a confidentiality agreement (see Annex 1); and
- The information shared should not be used for oversight purposes, unless in exceptional cases (for instance in the case of a serious safety threat, see Annex 1).

#### Note:

'independence from oversight functions' means not being involved in direct oversight of aircraft operators. However, if the NAA staff moderating the forum is also taking part to oversight activities, then the scope of the forum could be limited in order to prevent any conflict of interest from arising (for instance, by focussing on good practice).

<sup>.....</sup> 

<sup>1</sup> According to ECAST SMS working group, "Safety Culture is the set of enduring values and attitudes regarding safety issues, shared by every member of every level of an organization. Safety Culture refers to the extent to which every individual and every group of the organization is aware of the risks and unknown hazards induced by its activities; is continuously behaving so as to preserve and enhance safety; is willing and able to adapt itself when facing safety issues; is willing to communicate safety issues; and consistently evaluates safety related behaviour." (refer to "Safety Culture Framework", **published** on ECAST website)

<sup>2</sup> An example of official statement can be consulted in UK CAA document CAP 382 "The mandatory occurrence reporting system"

# **II. Definition of the project**

## 1. Resources needed

A national FDM forum as any other safety promotion initiative, requires some human resources and means. The EAFDM recommends checking that the following general conditions are met:

- This project has been endorsed by the NAA & Operators management;
- At least one NAA staff member is clearly identified as the **project manager**(s);
- Meeting facilities are available for meetings with all participants, or alternatively telecommunication means to allow for organising teleconferences in a convenient way; and
- If the activity resulting from the forum is foreseen to require the constitution of a project team, the NAA & Operators staff are identified (depending on the number of airlines and the amount of analysis/preparation resulting from the forum).

## 2. The project manager

Care in the choice of the project manager need to be taken:

- Such a safety promotion initiative induces workload for the project manager which should not be underestimated, especially at the start and also in maintaining the effectiveness of the meetings and interest among industry members. Based on experience of currently running FDM forums, it is recommended to allocate sufficient resources. The project manager will need sufficient preparation time. For instance the role of managing the forum should be part of the annual goals of that person's job role in order to help avoid resource conflict.
- As safety experts (flight safety officers, FDM programme managers) are expected to represent operators in the national FDM forum, the project manager needs to have a technical professional background (professional pilot, aviation engineer, researcher, etc.) and he/she should have a good understanding of FDM and of safety risk management. If needed, he/she should undergo training on FDM or on safety risk management before starting the project.
- As the trust of operators is essential to a successful national FDM forum, the project manager position with regards to NAA oversight function must be clearly defined in order to guarantee that information shared will not be used against them. The EAFDM recommends that:
  - > special reporting arrangements might be necessary to minimize possibilities of pressure to release sensitive information learnt through the FDM forum, and
  - > for this particular project, a statement by the top management (circular, decision, etc.) states that the project manager is not required to report findings made during forum activities to the NAA oversight function, except when a serious safety threat is identified (see Annex 1). This statement should not prevent the project manager from reporting on the general progress of the national FDM forum, nor from sharing safety lessons with other NAA functions, however the information passed to the outside of the forum should not allow identification of an operator.

## 3. Infrastructure and equipment

The EAFDM recommends checking early for the availability of adequate meeting facilities, even if nothing prevents the meeting from being hosted by an operator.

As the participants are likely to have busy agenda and because travel expenses should be as low as possible, available remote communication means could complement face-to-face meetings. These could be:

- Virtual meeting tools, including conference call numbers or tools to display documents remotely, when the number of participants is small (less than 15).
- A secure, confidential workspace accessible through the internet, reserved for the participants to the forum, for sharing documents etc.

Access to specific software such as flight data analysis software is not necessary to a successful national FDM forum.

Note:

Maintaining a flight data analysis capability requires regular practice which implies more human resources.

## 4. The participants

It is advised to carefully assess who will be eligible to take part to the national FDM forum before sending a call for participation.

There are ways of opening this initiative to a variety of organisations while maintaining the level of confidence necessary to maintain trust.

These could be for instance:

- Restrict participation initially to aircraft operators and have them decide what other type of organisation they would let in;
- Ask the group members if they have an objection against the participation of an organisation.

In any case, all participants should sign a confidentiality agreement before being entitled to attend meetings and receive copies of forum documents.

## **Aircraft operators**

Primarily these should be national operators required to have in place a FDM programme according to Part-ORO, ORO.AOC.130 (operators of aeroplanes operated for commercial air transport and with a MCTOM in excess of 27000 kg).

The FDM forum should be open to participation of other operators not subject to FDM requirements, if they wish to join. Indeed, the obligation to maintain a management system (see ORO.GEN.200) applies to all aircraft operators virtually all aeroplanes of a MCTOM over 5700 kg and all helicopters with an MCTOM of over 3 175 kg must be equipped with a flight data recorder (refer to Part CAT, CAT.IDE.A/H.190) and therefore could deliver data to a FDM programme.

However consideration needs to be given on how the meetings are tailored to each audience (e.g. aeroplane operators or helicopter operators) and whether a separate sub-forum is appropriate to maintain engagement.

## **Flight Crew Associations**

It is usually recommended that flight crew representatives take part in the definition and implementation of an operator's FDM programme. In the same manner, the FDM forum could be open to the participation of flight crew associations.

## NAA staff

Other NAA staff may assist the forum manager, for instance if the workload induced by the forum activity is high or if a particular expertise is needed for a special forum activity. For example, the participation of experts in the field of aircraft performance, flight crew training, airworthiness, ATM procedures would be beneficial in certain discussions.

The participation of a staff member of the NAA team responsible for the SSP is also recommended when appropriate, as the forum could potentially contribute to the SSP.

Air operation inspectors and other NAA staff involved in the oversight of air operations may have a conflict of interest between their duties and the confidentiality agreement under which the national FDM forum takes place.

It is advised that confidentiality agreements running the FDM forum be endorsed at the highest appropriate level of the NAA, in order to reinforce their values, to prevent any conflict with professional obligations for the NAA staff taking part in the forum, and to display to participating operators a commitment by NAA upper management to respect these agreements.

## **Other organisations**

Other organisations may benefit from the lessons learnt exchanged in a national FDM forum to improve their knowledge of some safety issues and/or their safety. These could be:

- Airport operators and Air Navigation Service Providers (ANSPs): many operational safety issues have implications in the service provided by airport operators and ANSPs;
- Maintenance organisations servicing aircraft of operators participating to the forum;
- Military organisations, as they share the airspace (and some airports) with commercial air transport operators;
- Safety investigation authorities, who may have a genuine interest in better understanding day-to-day operational safety issues;
- Aircraft operators for which the State of the operator is not represented by the NAA, but who have significant operations or bases in the State represented by the NAA.

## 5. Interface with other safety promotion initiatives

Questions may arise on how a national FDM forum would interact with other safety promotion initiatives, either run by the industry or by the NAA.

A national FDM forum could be run as part of a larger safety initiative, as far as:

- 1. this is compatible with the general concept of the national FDM forum defined in I.2 (FDM promotion toward operators, and better monitoring of national safety objectives by the NAA);
- 2. control is kept on who is eligible to take part to the national FDM forum (see II.4);
- 3. control is kept on the confidentiality of discussions and data shared inside the national FDM forum; and
- 4. control is kept over the work programme of the national FDM forum.

There may also be some benefit to exchange information between the national FDM forum and other safety initiatives. Existing safety initiatives should be reviewed to check for possible cooperation/coordination with the national FDM forum. A few FDM promotion initiatives are mentioned in Annex 4.

## 6. Terms of reference

Drafting terms of reference is recommended for the launch of a national FDM forum. Indeed, this exercise requires defining the objectives and the fundamental principles that should govern it.

Terms of reference could cover at least the following topics:

- The fundamental objectives of the national FDM forum;
- What organisations are entitled to take part;
- The main topics envisioned to be addressed;
- The internal rules regarding confidentiality and protection of information (Confidentiality rule, what information is retained/ not retained, etc.);
- How the forum is organised (Who chairs, convenes the meetings, drafts minutes of meetings);
- How issues are added to the agenda;
- Logistical and financial aspects (Place of meetings, expected frequency of meetings).

An example of draft terms of reference is provided in Annex 2.

## 7. Work programme

It is advised not only to identify the topics which could be addressed in the framework of the national FDM forum, but also to explore them in order to make concrete proposals at the start of the project and be able to explain what the intended benefits are and how you plan to reach your objectives.

Hence the drafting of a work programme is recommended. In order to make it more relevant, a few aircraft operators could be involved in the drafting of this work programme.

An example of a work programme is provided in Annex 3.

# **III. Launch of the project**

## 1. The call for participation

Depending on the context, the call for participation to the national FDM forum may be more or less formalized. However, it is advised that the call for participation is sent by the NAA senior management and include a statement on the application of safety culture and on confidentiality principles inside the forum.

As the national FDM forum is a voluntary safety initiative, operators need to be convinced of the benefits of taking part, therefore it is recommended to enclose, together with the invitation message, documents detailing the project and its objectives.

For instance, draft terms of reference and a draft work programme would give the recipient a good idea of what is aimed through such an initiative. In addition, draft agreements of confidentiality, covering the information exchanged during meetings and the documents and data shared with the forum, would address the confidence issue.

## 2. Keys to a successful first meeting

## Set the expectations

The expectations should be established as soon as possible. They should be reasonable for all the stakeholders in terms of scale of effort required and likelihood of benefit for operators and the NAA.

- Make clear to operators what benefit they can expect from participation, for instance:
  - > Sharing of technical experience between operators;
  - > Safety information and statistics coming from other sources, that can be used to improve their FDM programmes (i.e. analyses on mandatory occurrence reporting, etc.);
  - > First-hand information on NAA activity in the FDM area (regulatory, oversight, research, statistics);
  - > Possibility to advise on NAA activity in the FDM area.
- Ask for the expectations of operators. Operators logically expect some safety "return-on-investment" on the time and resources they give for such an initiative. Therefore, operators' expectations shall be taken into account in defining the forum objective and the work programme.
- Make clear what workload and constraints the participation implies. These should remain reasonable, as the forum is a voluntary safety initiative. You should address as a minimum:
  - > The number of face-to-face meetings envisioned per year and their location
  - > Other commitments (such as teleconferences)
  - > Who provides or pays for what (meeting room, travel expenses, etc.)

## Agree on the terms of reference

Terms of reference are essential to frame the activity of a working group. An example of terms of reference is provided in Annex 2. They should include the confidentiality agreement, or at least its main principles.

Note:

If a member infringes the terms of reference, a sanction could be exclusion from the forum.

## Establish trust

It is essential for the success of the national FDM forum to make clear that it is a genuine safety promotion initiative.

In addition, all participants should be reminded on the confidentiality of the provisions, including confidentiality during and between meetings:

- Explain the principles of the proposed confidentiality agreement and review it carefully with participants;
- If possible, have participants adopt and sign the confidentiality agreement.

# IV. A typical FDM forum meeting

## 1. Meeting planning

The meeting should be long enough to make the presentations and reserve time for group discussions and enough time should be given to participants to raise FDM related issues of concern/interest. Depending on the number of participants a meeting usually lasts between 4 hours and a whole day.

The agenda should be sent to the participants beforehand with request to confirm whether they are giving a presentation and what issue they would like to raise.

Opportunity should be given to participants to bring additional topics. Topics that are in the scope of the forum and of interest for operators should be given priority. It is also good practice to ask at the end of a meeting about topics to be discussed at the following meeting.

## 2. Desirable milestones of a meeting

It is recommended that a meeting contains at least the following elements:

- Operators present their recent developments in FDM and when possible, exchange of best practice on pre-agreed topics. Ideally, this may constitute a major part of the meeting agenda<sup>3</sup>;
- The NAA, when necessary, briefs the group on the trends of top national and international operational safety issues, and the developments of the SSP;
- Debriefing of NAA on any regulatory change that may have an impact on FDM programmes.

## 3. Example of a meeting agenda

It is important to make a good agenda and to get every participant to prepare a presentation.

An example of an agenda:

- 1. Opening of the meeting.
- 2. Introduction of the participants.
- 3. Signing or reminding the confidentiality agreement/presence list (until done/new participants).
- 4. Checking the minutes or the summary of the last meeting.
- 5. Debriefing of NAA of a few significant operational safety issues revealed by recently published investigation reports, safety studies, etc. possibly followed by a discussion on how to monitor this issue in the FDM data.
- 6. FDM issues / operators:

#### Every operator gives a presentation about (for example):

- *i.* Current news and situation with FDM in the company;
- ii. List of current "Safety interest"- themes (e.g. "Operator's top 5");
- iii. Changes / actions done based on FDM analyses results after the last meeting;

<sup>3</sup> However this should not be enforced to the extent that operators feel obliged to provide an update just to 'tick the box'. This can also be a useful opportunity for operators to gather ideas from their peers on how to go about resolving any FDM related issues. Likewise the NAA should actively engage with their operators on any development of FDM 'best practice'.

- iv. FDM data / analyses done after the last meeting (some topics can be common for all the operators and agreed beforehand or the topics can be freely chosen by the operators).
- 7. NAA brief on any collaborative FDM projects being undertaken with operators e.g. related to data analysis.
- 8. Just culture application, difficulties.
- 9. Discussion on one specific topic (to be announced and prepared well before the meeting).
- 10. NAA information on regulation developments, bring to discussion draft regulations.
- 11. Presentation on new technologies and their use, upcoming conferences.
- 12. Date of the next meeting.
- 13. Closing the meeting.

## 4. Possible topics of discussion

Discussions, tutorials and demonstrations of analytical methods, process development and regulatory environment, should be combined with the exchange of safety issues. This will form the basis of an evolving, productive activity for all participants.

Experience has shown that a wide range of topics can usefully be discussed at a FDM forum. Some suggestions include:

#### Issues

- Top safety issues based on FDM;
- Top safety issues based on mandatory occurrence reporting in relation to FDM;
- New safety issues revealed by accident investigation reports;
- Specific case studies for example resulting in or from SOP changes;
- Comparison between different or same aircraft types, fleet/cross-fleet comparison;
- Underlying Human Factors aspects of FDM;
- Technical issues and solutions with FDM data capture and new technologies.

## **Analytical Methods**

- Flight data validation, reliability and interpretation;
- Event severity classification;
- FDM event definition;
- Statistical techniques.

## **Process Development**

- FDM integration within a Safety Management System;
- ► The role of flight crew representatives;
- The benefits of FDM both safety and economic;
- Operator's best practices;
- Occurrence reporting and implementation of the FDM programme.

## **Regulatory Environment**

- European FDM developments regulations and advisory material;
- National developments oversight methods;
- Ensuring a functioning safety culture.

# V. Confidentiality and communication to the outside

The objective of the forum is safety enhancement (via its promotion) and it is important that the forum manager puts in place the framework needed for the development of a safety culture inside the forum. Ensuring the confidentiality and protection of discussions and documents is essential to the development of trust.

A good way to address is to define a **confidentiality agreement**. This confidentiality agreement should:

- state the exceptional circumstances under which it would not apply, such as an immediate and serious threat for safety (see Annex 1); and
- contain a clear notice that signing this agreement is a pre-condition to taking part to the forum meetings and teleconferences, and to having access to the forum documents and data.

## 1. Confidentiality of discussions taking place during meetings

One example of a well-used and respected confidentiality agreement is the Chatham House Rule of Confidentiality. The agreement originated in June 1927 at the Royal Institute of International Affairs (Chatham House). It is now used internationally, and the basic principle is that:

"Participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant may be revealed; nor may it be mentioned that the information was received at this meeting. Where information is required to be passed outside the meeting this must be agreed, in advance, by a majority of those present and with the agreement of the information provider."

## 2. Handling and protection of FDM forum documents

In addition to the agreement on the confidentiality of discussions, an agreement addressing the confidentiality of documents and data exchanged during or between meetings should be prepared.

This confidentiality agreement should address at least the following questions:

- What are forum members entitled to do with the documents shared with the national FDM forum?
- Where are the documents and data shared with the forum physically stored, and who has access to this repository?
- What legal protection is offered to the forum documents and data against third party request (such as Freedom-of-Information-Act type request)?
- What are the rules applicable to meeting minutes?

An example of such a confidentiality agreement is provided in Annex 1.

## 3. In practice

It is recommended that a draft of such agreements be submitted to the NAA relevant senior manager(s) for approval prior to first meeting of the forum, since NAA staff taking part needs to be freed of the conflict of interest between their professional duties and the compliance with this agreement.

#### It is recommended that such a confidentiality agreement be acknowledged:

- by all participants at each meeting by introducing a sign-in list at the start of each meeting that is headed with the agreement, or
- only by new participants to a meeting. In this case the meeting moderator should at the beginning of each meeting or each teleconference, remind participants of this agreement.

## 4. Relationship with NAA oversight functions

NAA flight operations inspectors have to be informed of the FDM forum objectives in case someone will get in contact with them concerning this topic. NAA flight operation inspectors may get conclusions of the forum that are of general interest for their mission, but these conclusions should be de-identified.

#### Notes:

In the case where there is a serious safety threat, the forum manager may have to inform the NAA oversight function or the competent safety investigation authority (see Annex 1). This case should be addressed in the confidentiality agreements of the national FDM forum.

Also it should be made clear that taking part to the forum in no way removes the obligation of an operator's responsibility with regards to SMS procedures (e.g. reporting occurrences through the normal channels such as Mandatory Occurrence Reports<sup>4</sup>) and the safety investigation<sup>5</sup>.

#### 

4 Refer to Regulation (EU) No 376/2014.

<sup>5</sup> Refer to Regulation (EU) No 996/2010.

## VI. Lessons learnt from existing FDM Forums

This section gives an insight into practical aspects of running a national FDM forum and how various issues have been addressed.

## **1.** Participation in the forum

Attendance and active participation of all members is sometimes difficult to ensure. This may be due to either the fact that topics proposed for discussion are not felt relevant for some operators. All members should be encouraged to share any new lessons/further developments related to their operations since the last meeting. Questions from other members can often produce useful information. In addition, the project manager should try and involve members in the preparation of the meeting agenda.

The choice of a meeting date is essential for a high attendance. Participants should be consulted for their availability and the meeting date should be elected early enough (usually more than three months in advance for a face-to-face meeting).

It is advised to offer to members the possibility of electing a deputy to allow for more flexibility and a better follow-up. However the choice of the deputy should be substantiated (person knowledgeable on FDM) and preferably nominated for the long term (to facilitate continuity at each meeting).

When the turn-around of the flight safety officer position or of the FDM programme manager position is high at an operator, the follow-up by this operator is more difficult. If an operator delegate is leaving the forum, it is advised to identify as soon as possible his/her successor for a smooth passing over of representation.

In the case of a State where only a very small number of operators are performing FDM, a partnership with the NAA of another State should be investigated to get a FDM forum of a larger size. Joining an already existing FDM forum managed by another NAA could be another solution.

## 2. Ensuring all participants benefit from the meetings

The variation of knowledge between the participants/companies has to be taken into account and the agenda should contain elements that satisfy the expectations of all participants. In order to achieve this:

- A survey may help in better assessing the knowledge of each participant and adapt the topics accordingly;
- For operators which are new in the FDM field, specific support by the project manager may be beneficial. For instance, a dedicated session could be organised that includes presenting the applicable requirements and what is expected from them by the oversight function, advising about useful guidance material and training, advising on practical questions.

On occasion, reaching consensus and making democratic decisions with a large group has been difficult. As a moderator, the project manager can be encouraging and persuasive but he/she has to respect the meeting attendees' views.

Differences in opinion or in an operator's operation mean that a standardised approach can be hard to achieve, thus making it difficult for the project manager to gather industry intelligence that can be used for improving aviation safety. For instance, many business operators don't have scheduled operations, and this makes their contribution to reporting on FDM events challenging, as their data cannot be easily compared nor de-identified. However, the general principles underlying the safe operation of the operator and the foundations of their SMS should be similar.

## 3. FDM service provider

Some Operators may have contracted the processing and/or initial analysis of flight data to an external company (FDM service provider) and they may wish to bring representatives of this company to the meeting. However, the responsibility of analysing FDM data and integrating them into their SMS lies with the operator and this requires the Operator's representative to be sufficiently knowledgeable to present their FDM views to the Forum. There are cases where there exists a proven symbiotic arrangement with between Operator and service provider and it may be appropriate that both parties may attend the meetings.

In general the project manager should not accept FDM service providers as permanent Forum members. On occasions, a FDM service provider may be admitted to take part in a meeting, as a technical expert, to address a specific topic of the meeting agenda.

However, care should be taken regarding commercial conflict of interest where for example, the presence of one FDM service provider can be a problem when another operator may discuss issues about a competing FDM software product.

## 4. FDM promotion

In addition to promoting more effective use of FDM data the forum may also be used to encourage the takeup of FDM on aircraft that fall outside current OPS requirements, for example aeroplanes with a MCTOM below 27000 kg, aeroplanes not operated for commercial air transport and helicopters. Such operators may be encouraged to consider voluntary FDM if observers are invited to attend FDM forum meetings.

Agreement on the dissemination of lessons learnt beyond the group can be difficult but this may be eased by careful preparation of the text to highlight the safety issue without too much identification. Even so it is sometimes difficult to de-identify contributors as particulars such as the route or aircraft type can make certain operators readily identifiable. The important point is that significant safety issues raised through any source must be promulgated to those affected.

# Annex 1 – Confidentiality agreement

## 1. Example of FDM forum confidentiality agreement

This example of confidentiality agreement for a national FDM forum will need to be adapted to the national context. It may need to be written in the NAA working language.

Version:draft/initial:date:dd-mmm-yyyy

Participants:company, name, titles,...

"We the undersigned agree with the following document confidentiality rules:

- 1. Participants to meetings and teleconferences of the (country name) FDM forum are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant may be revealed; nor may it be mentioned that the information was received at this meeting.
- 2. Where information communicated at a meeting or teleconference of the FDM forum is required to be passed outside the forum this must be agreed, in advance, by a majority of those present and with the agreement of the information provider.
- 3. The documents and data shared inside the FDM forum are stored [by/at ... specify where the data or documents are retained physically, and who has access to them]. [Indicate if the documents are protected from third party request, such as Freedom of Information Act type request.].
- 4. Where a document or data are required to be passed outside the FDM forum this must be agreed, in advance, with the agreement of the document or data authors and of the providers of the information recorded by the document or the data.
- 5. Exceptions:
- a. In the exceptional case of an occurrence which is qualified as an **accident or a serious incident**, the competent safety investigation authority would need to be informed without delay, in accordance with Regulation (EU) 996/2010. In this case, the rules of the safety investigation would prevail.
- b. In the exceptional case where a significant non-compliance is detected and is not reported by the aircraft operator<sup>6</sup> after being requested to do so by the FDM forum manager, the latter would be responsible for passing over the information needed for addressing this safety threat to the responsible NAA staff.

*In any of these exceptional cases, the FDM forum manager would transmit only the information relevant to address the safety threat and only to those responsible for addressing it.* 

6. Participation to meetings and conference calls as well as reception of internal documents is preconditioned by the signature of this confidentiality agreement."

<sup>••••••</sup> 

<sup>6</sup> In accordance with applicable Regulations (e.g. Regulation (EU) No 376/2014).

## 2. Note on the exceptions to confidentiality agreements

The exceptions to the general confidentiality rules refer to the cases where a serious safety threat arises and regulation requires acting without delay. The severity of safety threat is not always easy to assess, however the EAFDM would raise attention on the following.

#### Accident or serious incident

Regulation (EU) 996/2010 on the investigation and prevention of accidents and incidents in civil aviation requires informing without delay the competent safety investigation authority in the case of an **accident or a serious incident**:

"Article 9 Obligation to notify accidents and serious incidents Any person involved who has knowledge of the occurrence of an accident or serious incident shall notify without delay the competent safety investigation authority of the State of Occurrence thereof."

#### Occurrence subject to mandatory reporting

Regulation (EU) 376/2014 on the reporting, analysis and follow-up of occurrences in civil aviation requires the reporting of 'occurrences which may represent a significant risk to aviation safety' through mandatory occurrence reporting systems.

Guidance Material published by the European Commission on Regulation (EU) 376/2014 contains specific guidance related to the interface between these regulations and the European rules applicable to flight data monitoring.

According to this guidance material:

'It is understood that Regulation 376/2014 does not apply to automatic sources of safety information such as the Flight Data Monitoring programmes in air operators or radar track analysis calculations in Air Navigation Service Providers.''

It comes out that:

- As a general principle, FDM events and statistics are not required to be reported to the oversight authority by Regulation 376/2014.
- Catastrophic and hazardous occurrences correspond to accidents and serious incidents and must be notified without delay to the competent safety investigation authority as well as to the oversight authority (as a mandatory occurrence report). The rules of the safety investigation prevail over any confidentiality agreement and over the confidentiality principles of Regulation 376/2014.

## Safety threat corresponding to a non-compliance with basic obligations

The air operation rules (Regulation (EU) No 965/2012) contain general provisions with regards to findings of significant non-compliance with basic obligations of an organisation.

# Annex 2 – Example of terms of reference

This Annex displays an example of terms of reference for a national FDM forum. It will need to be adapted to the national context. It may need to be written in the NAA working language.

## Terms of Reference of the national FDM forum of [State Name]

## **Objectives and scope**

1.1 The national FDM forum is a partnership between [NAA name] and aircraft operators. Its fundamental objectives are:

- a. to foster an open dialogue between [*NAA name*] and aircraft operators on FDM implementation that takes place in the framework of safety culture,
- b. to promote the operational safety benefits of FDM through open discussions and the sharing of experience between aircraft operators
- c. to contribute to a better overview of air transport operational safety in [State Name].

1.2 The national FDM forum is a voluntary safety initiative supported by [*Name of the department or function in the NAA to which the forum manager belongs*.]

## Composition

2.1 The members of the national FDM forum shall come from the following aviation components:

- 1. [NAA name]
- 2. Aircraft operators [Mention here what type of aircraft operators: aeroplane, helicopters, only those required to have a FDM programme (MCTOM over 27000 kg) or not, etc.]
- 3. [Mention other stakeholders if needed and approved by aircraft operators]

2.2 Experts and observers external to the group may be occasionally invited to join a meeting. In that case, the members must be informed in advance.

## Chairmanship

3.1 The national FDM forum is managed by a representative of [NAA name]. [He/she could be assisted by an aircraft operator]

## Tasks

4.1 The national FDM forum determines its activity programme taking into consideration the operational safety issues identified in the State Safety Plan and other topics of interest for its members.

#### Confidentiality

5.1 All participants to the national FDM forum, be they Members or not, commit themselves to respect the following confidentiality rules:

5.1.1 Participants to meetings and teleconferences are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant may be revealed; nor may it be mentioned that the information was received at this meeting. Where information is required to be passed outside the meeting this must be agreed, in advance, by a majority of those present and with the agreement of the information provider.

5.1.2 Where a document or data are required to be passed outside the meeting this must be agreed, in advance, by the document or data authors and by the providers of the information recorded by the document or the data.

#### 5.1.3 Exceptions (refer to Annex 1 Confidentiality agreement):

- 1. In the exceptional case of an incident which should have been reported according to applicable Regulations, the FDM forum manager would have to inform without delay the competent aviation authorities.
- 2. In the exceptional case where a significant non-compliance would be detected with applicable requirements, with the organisation's procedures and manuals or with the terms of an approval or certificate which lowers safety or seriously hazards flight safety (corresponding to a level 1 finding in air operation rules), the FDM forum manager would be responsible for passing over the information needed for addressing this safety threat to the responsible NAA staff.
- 3. In the case where a threat to aviation safety would be identified which is serious but does not fall into category a. or b., the FDM forum manager should request that the involved participants take corrective action to address this safety threat and report to him/her. In the absence of an appropriate and time-ly response by involved participants, the FDM forum manager would have to pass over the information needed for addressing this safety threat to the responsible NAA staff. In any case, the FDM forum manager would transmit only the information relevant to address the safety threat, only to those responsible for addressing it.

5.1.4 Participation to meetings and conference calls as well as reception of internal documents are preconditioned by the signature of corresponding confidentiality agreements.

#### 5.2 Meeting minutes

- a. Meeting minutes should be produced for a better follow-up of discussions and actions; they are reserved to members of the forum.
- b. Meeting minutes may indicate the list of participants/affiliates. Meeting minutes may also contain an indication on the identity or affiliation of any participant expressing an opinion or making a presentation unless the participant explicitly requests de-identification.

5.3 The forum manager may produce summaries for the outside. A meeting summary may contain general information on the meeting attendance and on the topics addressed.

5.4 The forum manager may ask participating operators to provide, with their prior consent, FDM data or derived/related information to support safety related projects.

## Logistics and organisation of the work

6.1 A minimum of one face-to-face meeting per year is envisioned. The meetings shall take place in [Recommend-ed: a location easy to access].

6.2 [NAA name] will offer, to the extent possible, to host meetings (Meetings may be hosted by a member organisation if desired). Travel and accommodation costs are supported by the participants.

6.3 The group coordination between meetings is conducted through distant communication means (phone, dedicated extranet workspace, emails, etc.).

6.4 Actions and minutes should be distributed to members between meetings. Requests for corrections/clarification should be provided prior to the subsequent meeting.

These terms of reference have been agreed upon and signed by members of the forum (hereafter mentioned):

Member name and function	Alternate members	Organisation	Date (dd-mmm-yyyy) and signature
John SMITH (FDM MANAGER)			
XYZ			
XYZ			
XYZ			

# Annex 3 – Example of initial work programme

This Annex presents an example of an initial work programme for a national FDM forum. This will need to be adapted, taking into account the NAA safety priorities and operators' expectations. Safety objectives set by the EPAS and recommendations of the EAFDM should also be taken into account. The forum manager will be responsible for drafting and updating the forum programme.

- Make an inventory of problems encountered by operators in the implementation of their FDM programmes. Identify practical solutions for each problem.
- Make an inventory of measures taken by operators to ensure that a safety culture applies to their FDM programmes. Identify practical solutions to issues raised.
- Identify and compile those safety issues which are top priority for a majority of operators or for the NAA, called below "common FDM priorities".
- Make an inventory of techniques and methods used by operators to monitor the common FDM priorities.
- Define and develop FDM events, which could be programmed by operators for the monitoring of common FDM priorities.

# Annex 4: Regulation and guidance related to FDM and safety management

## 1. International regulation and guidance

#### FDM requirements on aeroplanes operators

ICAO Annex 6 to the Convention on International Civil Aviation, Operation of aircraft Part I: International Commercial Air Transport – Aeroplanes (amendment 40):

**"3.3.1 Recommendation** - An operator of an aeroplane of a certificated take-off mass in excess of 20000 kg should establish and maintain a flight data analysis programme as part of its safety management system.

**3.3.2** An operator of an aeroplane of a maximum certificated take-off mass in excess of 27 000 kg shall establish and maintain a flight data analysis programme as part of its safety management system.

#### Note

An operator may contract the operation of a flight data analysis programme to another party while retaining overall responsibility for the maintenance of such a programme.

**3.3.3** A flight data analysis programme shall contain adequate safeguards to protect the source(s) of the data in accordance with Appendix 3 to Annex 19.

Note

Guidance on the establishment of flight data analysis programmes is included in the Manual on Flight Data Analysis Programmes (FDAP) (Doc 10000)."

#### FDM requirements on helicopter operators

ICAO Annex 6 to the Convention on International Civil Aviation, Operation of aircraft Part III: International Operations – Helicopters (seventh edition amendment 19):

**"1.3.1 Recommendation**.— An operator of a helicopter of a certified take-off mass in excess of 7000 kg or having a passenger seating configuration of more than 9 and fitted with a flight data recorder should establish and maintain a flight data analysis programme as part of its safety management system.

#### Note

An operator may contract the operation of a flight data analysis programme to another party while retaining overall responsibility for the maintenance of such a programme.

**1.3.2** A flight data analysis programme shall be non-punitive and contain adequate safeguards to protect the source(s) of the data.

#### Note 1

Guidance on the establishment of flight data analysis programmes is included in the Manual on Flight Data Analysis Programmes (FDAP) (Doc 10000).

Note 2

Legal guidance for the protection of information from safety data collection and processing systems is contained in Attachment B to Annex 19."

## State Safety Programmes (SSP)

#### **ICAO** Annexes

ICAO Annex 19 prescribes that States to establish a State Safety Programme (SSP), in order to achieve an acceptable level of safety in civil aviation. A SSP is a management system for the management of safety by the State.

#### ICAO Doc 9859: Safety Management Manual (SMM) (Third edition dated 2013):

ICAO Doc 9859, Safety Management Manual (SMM) provides guidance for the development and implementation of a SSP in accordance with the international standards and recommended practices (SARPs). In the appendices of the document are different practical examples on how to link a safety management system with the state safety programme of a NAA.

#### **Additional guidance**

#### CAA UK CAP 739: Flight Data Monitoring(2nd Edition, June 2013)

This document outlines good practice relating to first establishing and then obtaining worthwhile safety benefits from an operator's Flight Data Monitoring (FDM) programme.

#### U.S. Department of Transportation, FAA – Advisory Circular No: 120-82 (April 2004):

This advisory circular (AC) provides guidance on developing, implementing, and operating a Flight Operational Quality Assurance (FOQA) program that is acceptable to the Federal Aviation Administration (FAA).

## 2. The current European regulatory context

#### Air operation rules

#### FDM programmes for large commercial air transport aeroplanes

Paragraph ORO.AOC.130 of Commission Regulation (EU) 965/2012, Annex III (Part ORO), contains the requirement on commercial air transport operators that for aeroplanes with an MCTOM of over 27000 kg, an FDM programme is established.

An acceptable means of compliance is provided by paragraph AMC1 ORO.AOC.130

In addition, more detailed guidance material on FDM programmes has been introduced into GM1 ORO.AOC.130. GM 2 ORO.AOC.130 refers to UK CAA CAP 739 for additional guidance.

#### FDM for supporting an ATQP

Requirements for getting approval for an alternative training and qualification programme (ATQP) are laid down in Part ORO, paragraph ORO.FC.A.245.

An acceptable means of compliance is provided by AMC1 ORO.FC.A.245 It includes the provision of a FDM programme or an advanced FDM programme.

#### FDM for alleviating FDR operational check

Annex IV (Part CAT) of Commission Regulation (EU) 965/2012, contains a requirement on operators to perform operational checks to maintain the serviceability of flight recorders: see paragraph CAT.GEN.MPA.195. An acceptable means of compliance is provided by AMC1 CAT.GEN.MPA.195 (b). It includes an alleviation of the annual FDR recording inspection, when, among other conditions, an FDM programme is in place.

#### **Regulation on the reporting of occurrences**

Regulation (EU) 376/2014 on the reporting, analysis and follow-up of occurrences in civil aviation requires the reporting of 'occurrences which may represent a significant risk to aviation safety' through mandatory occurrence reporting systems. According to its Article 3, this includes occurrences related to the operation of the aircraft.

Commission Implementing Regulation (EU) 2015/1018 contains types of occurrences that should be recorded.

Guidance Material published by the European Commission on Regulation (EU) 376/2014 and Commission Implementing Regulation (EU) 2015/1018, contains specific guidance related to the interface between these regulations and the European rules applicable to flight data monitoring.

In particular, Section I (introduction), paragraph 1.8 (information covered by Regulation 376/2014) states:

'It is understood that Regulation 376/2014 does not apply to automatic sources of safety information such as the Flight Data Monitoring programmes in air operators or radar track analysis calculations in Air Navigation Service Providers.'

In Section II (aviation professionals), paragraph 2.9 (timeframe to report an occurrence) states:

'Regulation 376/2014 requires the persons subject to mandatory reporting requirements to report occurrences listed in the Regulation 2015/1018 within 72 hours of becoming aware of the occurrence, unless exceptional circumstances prevent this (Article 4(7)). (...)

In some cases an individual may be made aware of an occurrence through the automatic reporting systems of his/her organisation (e.g. Flight Data Monitoring programme, post processing of radar tracks etc) and not during the actual operation. In those cases, the 72 hours period starts when the potential reporter is made aware of this occurrence.'

#### **European Plan for Aviation Safety (EPAS)**

The sharing of roles between the European Union and the Member States makes it impossible for the Member States to alone take full responsibility for an SSP. There is a need for a European Aviation Safety Programme to complement what is done by the Member States which encompasses the powers transferred to the European Union.

The proposed approach for European aviation safety is based on three elements:

- 1. A set of policies and objectives from political authorities (the strategy)
- 2. An integrated set of regulations and activities aimed at improving safety (the European Aviation Safety Programme).
- 3. A high level safety issues assessment and related action plan (the European Plan for Aviation Safety EPAS).

The EPAS proposes actions to address the high level safety issues identified at the European level. It is a rolling 4 years plan which is updated annually.

On the advice of the EAFDM, Safety Action SYS3.11 was included in the 'European Aviation safety Plan' (former name of the European Plan for Aviation Safety) in 2012. In the EPAS 2016-2020, this Safety Action was renumbered MST.003, and its description is the following:

"States should set up a regular dialogue with their national aircraft operators on flight data monitoring (FDM) programmes with the objectives of:

- Promoting the operational safety benefits of FDM,
- Fostering an open dialogue on FDM programmes that takes place in the framework of just culture,
- Encouraging operators to include and further develop FDM events relevant for the prevention of RE, MAC, CFIT and LOC-I, or other issues identified by the State Safety Programme."

## 3. Initiatives related to the promotion of FDM

A number of safety initiatives are promoting FDM. A NAA that would like to set up a national FDM forum may want also to establish contact with some of them. The list below is indicative and not exhaustive.

- The European Aviation coordination group on FDM (EAFDM) is a voluntary partnership between EASA and NAAs. Participation is normally reserved for NAAs and EASA, but observers may be allowed under certain conditions.
- Several NAAs of EASA Member States have been running national FDM forums. Just as an indication, the following NAAs have an active forum to this date (non-exhaustive list): CAA UK, FOCA Switzerland, Trafi Finland, DGAC France.
- The European Operators FDM forum (EOFDM) is an independent industry-led safety initiative placed under the aegis of the European Commercial Aviation Safety Team (ECAST). The EOFDM is steered by European Operators, but NAAs are entitled to request participation



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