Small SIAs - Big challenges

Reflections on performing safety investigations in a small organization

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The context

When an aviation accident happens, each State signatory of the Chicago Convention has the same obligation: "[to] *institute an inquiry into the circumstances of the accident, in accordance* (...) *with the procedure which may be recommended by ICAO*".

Of course, the exposure to risk of each SIA having to deal with a major accident varies considerably for each State, depending on several factors (i.e., traffic, fleet, aviation industry regulatory environment, maturity of safety culture, etc.) and, maybe based on this consideration, each State has given their SIA a wide variation in size and capability.

This is well illustrated if we look at the scene within the Member States that integrate the European Network of Civil Aviation Safety Investigation Authorities (ENCASIA), whose members vary from States with SIAs comprising 1 to more than 24 investigators (fig. 1).

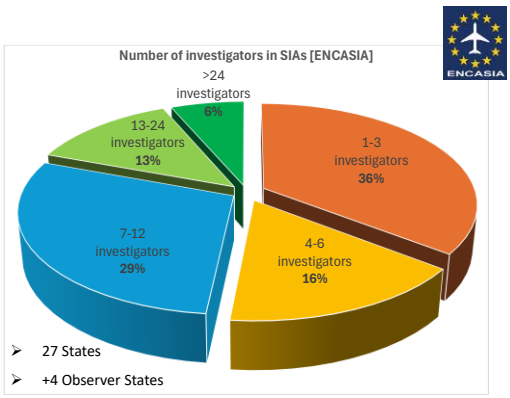

Fig. 1 – Number of investigators in SIAs integrating ENCASIA

Again, if we look at the chart compiling the number of investigators in SIAs within ENCASIA, it can be seen that just over 1/3 of SIAs have between one and three safety investigators, while a little more than half have not more than six safety investigators.

However, the base responsibility as set out in article 26 of the Chicago Convention does not change depending on the size of the SIA. Whether big or small the organization may be, the legal obligation is there and should be discharged following the ICAO procedures to extract meaningful safety lessons to prevent future accidents.

Now, you are one of the small SIAs with, say, 3 or 4 safety investigators, and suddenly you must deal with a major accident. And this may not even be a large "hole in the ground", maybe just an event with limited consequences but with a high public impact, involving multiple parties and complex interactions and analysis, therefore requiring the means of a major investigation.

Quickly the small SIA, besides the immediate internal operational response to the event on site, and the need to arrange for resources and logistics, will be saturated by requests from the media, the Government, other interested States, etc, all this under the time pressure to deliver results (fig. 2).

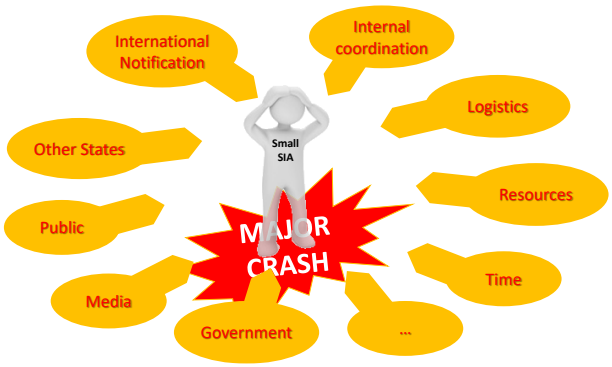

Fig. 2 – Topics requiring immediate attention after a major accident

This can be quite overwhelming for a small SIA, leading to ill-conducted work, loss of credibility for the SIA and, ultimately, for the State. But, worst of all, it can result in important safety lessons for the aviation industry being lost or not apprehended in a timely manner.

Of course, there is always the legal option of delegating the investigation to another State. However, it must be realized that this may be more theoretical than a real option. First there needs to be an involved State which will have the resources and willingness to accept the delegation, then the logistics of an investigation being conducted by a foreign party involves practical difficulties by itself, always requiring a very active participation of the delegating State. Lastly, the delegation to another State due to lack of resources may not be politically acceptable to the State of occurrence.

So, how can small SIAs deal with and minimize these challenges?

To have a plan

When a major event happens – which can be at any moment – there is no time to plan, just to execute as best and swiftly as possible.

Planning must be done in advance so that all involved will know what to do and have prepared materials and guidelines to refer to.

This plan should be based on:

- Robust internal policies and procedures defining how the work is to be done,
- Advanced arrangements with other parties, namely the other State authorities that will normally be involved and interface in a major accident or major investigation, but also foreign entities that will be able to support the investigation (*more on this later*),
- Investigation management, setting up the framework for actions, both internal to the SIA and external interfaces, during the investigation, especially onsite and during the first days and weeks of the investigation,
- Process for Report publication and subsequent monitoring, both of the safety recommendations but also of the feedback to the report, so as to feed into the SIA's self-improvement process.

Looking again into the European Union, namely the practice within ENCASIA members, a template for a National Investigation Management Plan helps States in preparing for a major event, by

establishing common principles and fostering advanced arrangements with the many parties involved during the phases of a safety investigation.

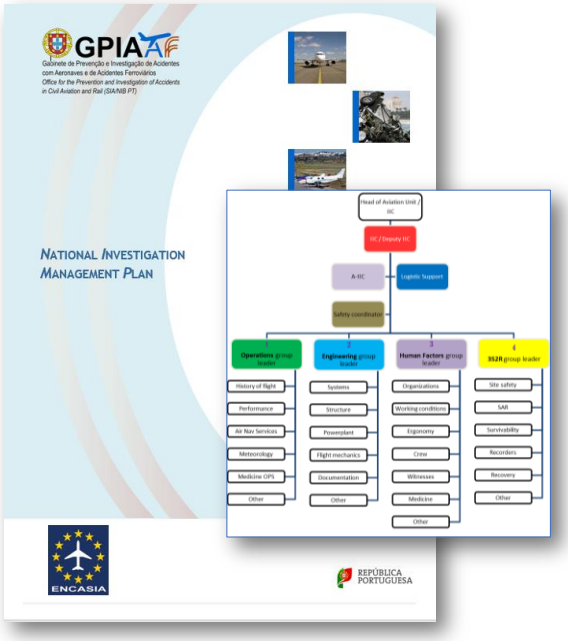

Fig. 3 – Investigation basic organization as set out in the National Investigation Management Plan

However, implementing the designed plan when a major accident happens will require a lot of competent people to populate the basic structure organized to perform the investigation (fig. 3), people which a small SIA doesn't have available in-house. So, having a plan is not enough.

External resources

An important part of the preparation of a SIA for a major investigation is identifying and establishing pre-arrangements with third parties that can integrate the safety investigation, provided that the requirement of non-conflict is fulfilled.

On a national level, support should be arranged from sources like the following:

- External professionals that can be trained in the SIAs procedures and protocols, and are, therefore, familiar with the organization's working practices,
- Institutions with technical know-how, such as universities and laboratories,
- State organizations that can provide logistical support (Civil protection, Air Force, Marine, ...),
- Media advisory support, either from the Government structure or sourced from the private sector, which should already be familiar with the scope, objectives and working practices of the SIA, being able to respond to a very important and demanding task during the first hours and days following a major accident.

On the international level, it is essential to pre-arrange for support from other Safety Investigation Authorities, that are able to quickly come to assist the SIA, by supplementing and/or tutoring during a major investigation. Regional Accident Investigation Organizations or other regional cooperation mechanisms, like ENCASIA in the EU region, can also be very useful in supporting small SIAs.

In the case of the EU region, the ENCASIA Mutual Support System (EMSS) that is under development is aimed at facilitating the sharing of resources during a major event, by previously identifying capabilities within each SIA, that can be mobilized if needed by another SIA.

Naturally, this sharing of resources requires a standardization of procedures based on recognized good practices followed by all SIAs. To facilitate this, besides issuing guidance documents on several topics, ENCASIA has set up a program of peer-reviews among all of its members, aimed at the dual purpose of helping individual SIAs to comply with the European legal framework relating to aviation safety investigation and for identifying and disseminating good practices.

Fig. 4 – ENCASIA peer reviews – phase 1 – 2014 to 2018

Training

Training for investigating a major aviation accident is very difficult to do during a real event, especially for safety investigators from outside the investigating SIA. Not only are they – fortunately – very rare but also the demands of the task and time pressure hardly allow to organize training and tutoring. This poses serious difficulties for investigators to gain proficiency (or even maintain competence) in investigating such events.

Therefore, in addition to the proficiency in general investigation practices gained during the more common smaller events, training must be done through organizing table exercises and participating in large scale emergency exercises, both involving most or all the parties that would be active following a major accident. Besides training on the major accident procedures, this will also allow to test interactions among the several agencies involved, one of the critical parts during a major investigation.

Fig. 5 – Organizing table exercises and participation in large scale emergency exercises

Having achieved trained and competent staff, a small SIA then deals with the major challenge of being able to retain such a valuable asset. This is crucial to the ability of any State to deal with a major accident, especially the ones having a small SIA, and involves the State acknowledging the importance of retaining trained and competent aviation safety investigators by offering adequate compensation, competitive with the industry.

A big challenge – but not exclusive to small SIAs

Before concluding, mention must be made to one common finding in the peer reviews carried out by ENCASIA, and that feedback received by the author suggests that it is common worldwide, namely the, sometimes difficult, interaction between the safety and the judicial investigations and application of justice. This is indeed also a big challenge, but by no means specific to small SIAs, although these may have greater difficulty in managing it.

In many States, and despite ICAO SARPs, the national legal framework still allows the judicial authorities to seize evidence, delaying access to it by the safety investigation, to request elements from the investigation file (if not the whole file), to use the safety investigation report as prosecuting evidence, and even to call safety investigators to the witness stand in processes to attribute blame and responsibility.

Fig. 6 – The challenge of dealing with the judicial investigation

These practices are seriously detrimental to the safety investigation and to the trust that the Safety Investigation Authorities should be granted within the aviation sector and the operators involved in an accident, so that they are able to obtain true and complete information for the safety improvement process. Unfortunately, only a few States explicitly prohibit these practices in their legislation.

However, and taking the risk of diverting a bit from the main topic, the Safety Investigation Authorities should also reflect within themselves if the way that conclusions in the reports are drafted aren't many times also contributing to the tendency of prosecutors to use them to attribute blame and responsibility. In fact, and despite more than two decades after the teachings of Reason and Dekker, most safety investigation reports are still concluding their findings by putting the focus in the immediate causes and the actions of the front-line operators, eventually mentioning afterwards human and organizations factors as distant causes, sometimes almost as a blurred afterthought.

Maybe, if the "Conclusions" chapter in the investigation reports was organized so as to start by stating the organizational factors and context that unfolded to conduct or induce the front-line operators to take the actions that they did, a better separation could be achieved from the process to attribute blame and responsibility to individuals (besides putting the focus where the opportunity for change to consistently improve safety really lays). This is a change of paradigm that must be seriously reflected upon within the SIAs and the safety investigators communities.

Regardless, the essential point regarding this challenge should be that the States' national legislation must be clear and strict in the separation between the safety investigation and the processes to attribute blame and responsibility, and all stakeholders in the industry, from international organizations to front-line operators, should strive to guarantee this. All have to gain because involving the SIAs in processes to attribute blame or responsibility is actively preventing an ever-safer aviation industry and the higher value of saving lives in the future.

In conclusion…

Small safety investigation authorities face big challenges when confronted with investigating a major event.

It must be acknowledged that most of the Safety Investigation Authorities will never be sized to cope, by themselves, with such an investigation (nor should they be). However, all have the responsibility to be prepared to deal with and manage such a major investigation.

This should be prepared well beforehand and can be achieved by:

- Having a robust plan,
- Establishing cooperation mechanisms (national and international),
- Interchanging with colleagues,
- Being able to have trained and competent staff,
- Trust the training!

Seminars like the ones organized by ISASI are also part of this preparation by sharing of good practices, knowledge dissemination and networking among colleagues of the same trade.

To link to the moto of the Lisboa 2024 ISASI Seminar, if a small SIA has worked to prepared itself, then, we can be sure that when facing a major event, it will be more capable “to safely navigate through uncharted waters”.