White Paper

On

Simpler Means Safer

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2. Executive Summary

The aviation industry has a clear strategy of introducing risk based Safety Management System (SMS) but many of those responsible have found the transition to SMS confusing, overly complicated and costly. This paper seeks to identify the typical barriers to a successful SMS implementation and recommend clear, practical and simple steps which can be put in place in an organisation to help pave the way for an effective SMS.

3. Introduction

A safety management system is NOT a project that an organisation does and then forgets about. Simply put, SMS is a way of doing business, in this case, doing business safely using evidence based risk management techniques to manage safety. Its effectiveness will be very much dependent on how good the policies, processes, tools and, above all, safety culture are.

ICAO define SMS in their SMM 9859 (3rd edition) document as “A systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures”. There is no mention of the tools or culture in this definition and this could be one of the reasons that many organisations get hoodwinked into thinking that if they produce a SMS Policy and Procedure Manual then they are 90% there! This is far from the truth and it is widely recognised by those who have had the responsibility for implementing SMS that, having properly integrated risk management tools and a good safety culture, is a harder nut to crack.

It is important to document the policies, processes, organisation and safety accountabilities but this paper will not focus its attention in this already well defined area of SMS as this is not one of the barriers to a successful SMS implementation and on-going operation. Instead the paper will concentrate on how an integrated approach to SMS will help simply the transition by producing an appropriate organisation-wide use of risk management tools and techniques and develop and maintain an effective safety culture to support an SMS.

4. Integrated approach to SMS

When EASA published their SMS recommendations for Europe, they learned from the mistakes of the past and stressed that an SMS should be integrated as much as possible with an organisation's other management systems as well as being proportionate to the size/complexity of that organisation. Although this was a step in the right direction, it still did not address the fundamental problem of how to actually integrate the diverse tools used by various departments to risk manage in a consistent and holistic manner. Another fundamental problem also still to be addressed is how to develop and maintain a safety culture which will support the new way of doing business. Although this paper focusses on SMS tools, it will also identify the areas where safety culture can be improved by better integration and use of these tools.

5. Integrated SMS tools

What are SMS tools?

Normally when people refer to SMS tools in an airline, these are the software tools used to collect actual and potential hazards in the operation. These tools may include:

- Safety Incident Management: normally safety reports filed by Flight Crew, Maintenance, Ground Handling Cabin Crew. Incidents are risk assessed and a level of investigation applied. Findings and actions are monitored to ensure risk mitigation.
- Flight Data Monitoring (FDM): flight data is analysed and events captured which are analysed and the appropriate mitigation actions monitored.
- Audit Management; findings from audits are captured and actions monitored to ensure compliance.
- Proactive Risk Management: identifies potential hazards and risk and monitors mitigation actions to minimise these risks.

What are the problems?

Silo Mentality

Normally the FDM tool is solely used by flight operation for safety purposes although extracts from the system are used for other purposes such as EHM (Engine Health Monitoring), Fuel Efficiency Systems etc. However, the other three tools above are normally used by all of the main operational airline departments and often the information contained within them are used only by that department. Indeed this Silo mentality is made worse if the different departments use different tools and techniques to manage safety. For example, if the CEO asks “what are our top five safety risks?” then the answer will depend on which information you use from which tool. For example, the top three safety risks for the organisation might be under the control of “Maintenance” so if the CEO is getting information from the wrong department, for example, Flight Operations then their tools will probably not highlight these risks. Added to that, in many organisation, a head of department or the Post Holder might struggle to identify their own top risks as these will no doubt be scattered among the information in the four tools identified above.

Inconsistent approach

Many tools used to support an SMS are not truly risk based and therefore do not really support a risk based SMS approach. To compound this problem, many tools also have inconsistent processes and classifications making it difficult to compare hazards and risks. This inconsistency between tools leads to confusion and overly complicated practises which many of the users of these tools find bewildering. Even in the same tool, different departments will have different processes, classifications and even risk matrices which makes it even harder to compare “apples with apples”.

Simpler means safer

The departmental silo mentality coupled with overly complex tools, inconsistent processes and practices does not help build and maintain a good safety culture or an effective SMS but this is a situation which can be improved. The silo mentality culture can be changed through education. Over complex tools and an inconsistent approach can be overcome by simply going back to basics and using a common, simple to use SMS tool with the same processes and practices which all of the departments sign up to.

The old tired mantra of “this is how we’ve always done it” is not helpful here; many of the departmental tools, processes and practices come from a time before SMS and have either been adapted or “shoe-horned” to fit in with the new risk based safety management system. This overly complex situation often means that operational and safety staff find themselves “slaves to the machine” rather than using the machine to free up their time to do proper investigations and analysis; this is not a situation which will deliver an effective safety management system and this is why the headline of this paper is Simpler Means Safer.

Technology can help

Technological advances over the years has produced software tools that are easier to use and can handle enormous amounts of data. However, many organisations have yet to apply these technological improvements to their SMS tools. For example, a hosted SMS solution is easy to implement and, if designed correctly, easy to use and only requires a web browser to access a wealth of information. These hosted solutions also make it easy for all staff in an organisation to access and submit safety information via PC's, Laptops, iPad's, iPhones etc. Often the overly complex tools referred to earlier in this paper are also difficult to implement in an organisation as they have to be installed on the organisation's servers. This requires IT expertise and resources from the organisation to set up the initial installation. This therefore needs careful planning and can become a huge IT project for what is, essentially, a simple software tool. It must also be remembered that the software tool project plan is just an element of the overall SMS Implementation Plan and so the simpler this can be made then the easier it will be resource and implement the other elements of the SMS plan; e.g. policy and procedure manuals, training, etc. A hosted solution, on the other hand, is very easy to implement and support and requires minimal IT effort and resources from the organisation; in fact, a web based browser is all that is required! The set up and implementation is therefore is mostly the responsibility of the software/service provider and normally this means a much quicker and less complicated implementation.

What do we need from SMS Tools

To address many of the SMS issues discussed above, an organisation should think corporately and ask one very simple question, what do I want out from my SMS tool(s)? To answer this question, we should look at the four ICAO SMS Components; *Safety Policy and Procedures, Hazard Identification, Safety Assurance* and *Safety Promotion*. The 2nd and 3rd components of SMS are the two vital ones when considering what the SMS tools should output. The tools will be referred to in the 1st and 4th components but the primary function for the SMS tools is to deliver ***Hazard Identification*** and ***Safety Assurance*** for the organisation.

Hazard identification

The SMS tools discussed earlier should be designed to be simple to use which will allow easy reporting and identification of hazards by all staff in an organisation. The same reporting methods, processes, risk and hazard classification should be employed to allow all of the information collected to be risk assessed and analysed and reported in a consistent manner. These hazards could be reported as incidents by flight crew, maintenance or cabin crew or identified as findings by auditors or by those involved in conducting proactive risk assessments. FDM will also identify hazards. Wherever they are discovered or by whom, they should all be managed in a consistent way by the SMS tools.

Safety Assurance

The SMS tool must produce the appropriate Safety Performance Indicators (SPI's) which the organisation can use to demonstrate that its top risks are being managed. Again, this needs to be done in a consistent manner which allows for corporate, departmental, sub-departmental and even staff SPI targets. SPI's will be organisation specific and these could change over time; e.g. Fatigue might become a top risk and therefore more KPI's required to monitor this area. The KPI targets will normally be agreed by the local Aviation Authority and this will ultimately be how the organisation demonstrates *Safety Assurance.*

6. Conclusions

- An integrated approach to SMS drives the need for common SMS tools used throughout the organisation which use consistent and simple-to-use processes.
- SMS tools used throughout the organisation help breakdown the departmental silo mentality and helps promote a better safety culture.
- Hosted SMS tools makes the implementation easier for the organisation and will take up less time and IT department resources.
- The SMS tools should be capable of producing risk analysis and metrics for proper safety assurance of the organisation.
- An easy-to-use and accessible SMS tool will promote open reporting and information sharing which will help build a better safety culture. It will also allow safety professionals to spend more time on analysis and investigations rather than administrating SMS Software.
- SMS tools should be flexible and scalable to function effectively in both small and large organisations but should still be kept simple even in complex organisations.