

Gallagher Specialty | Edition 4

# FLIGHT PLAN

A SPECIALIST RISK PUBLICATION  
FOR THE AVIATION SECTOR



**Gallagher**

Insurance | Risk Management | Consulting

# Executive foreword

Welcome to the fourth edition of Flight Plan, brought to you by SOAR, Gallagher's in-house operational safety and risk advisors.

In this edition, we cover a wide variety of topics, with feature articles from a range of industry professionals.

Jerry Allen of The Just Culture Company provides a perspective on Just Culture and Safety. Jerry outlines some thought provoking information on bringing system improvements and learning into The Just Culture equation.

Linda Werfelman, Senior Editor at the Flight Safety Foundation, highlights the new risks in European airspace. She specifically covers the aviation risks resulting from Russia's invasion of Ukraine and the impacts already being felt.

Dave Malins, formerly of the UK CAA, has authored an article outlining whether these are exciting or challenging times for the aviation industry. He discusses the state of the industry today, with a focus on introducing an effective SMS for Airworthiness that must be based on a safety baseline and rooted in a strong compliance culture.

Simon Harlow of Sirius Aviation Limited discusses the importance of integration of safety management systems to ensure a continuity of effective performance data, and allow risk-based decision making within organisations.

Finally, Sandy Lonsbury, Senior Advisor at Gallagher, provides an article on understanding the ramifications and potential risk mitigation measures of aircraft/airlines that have special authorisation to fly into Russia or that could potentially be involved in a Russian airport or airspace.

We hope you enjoy this edition and please let us know if there is a particular topic you would like to see covered or if you would like to contribute to our next edition.

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# Just Culture and safety: Over focused on safety? A perspective

**Author:** Jerry Allen  
Senior Advisor, Executive Lead Industry Operations at The Just Culture Company

People make errors, engage in at-risk behaviours and even self-serving or harmful behaviours occasionally. This range of behaviours in high-risk industries can result in a wide variety of adverse outcomes and loss.

A Just Culture balances the need for an equitable system of workplace justice with the end goal of a quality learning environment, and developing the culture necessary to support and sustain learning. In an ideal system of workplace justice all employees are held responsible for the quality of their choices, regardless of rank, leadership position etc. Just culture as we see it requires a change in focus from merely responding to errors and outcomes to a broader focus on system design and the management of the behavioural choices of all employees.

## Background

One traditional organisational approach has been to seek out and identify the responsible individual. Individual punishment may often follow. This punitive approach does not solve a fundamental problem. People function within systems designed by an organisation. Individual decision-making may be at fault to some degree, but frequently the system design and

organisational culture build the path for failure. Punishing people without addressing system deficiencies only perpetuates a culture of cover-up rather than addressing those system deficiencies.

Leaders of organisations are obligated to cultivate productive investigative data that can be analysed and acted upon to improve overall safety, reduce risk and become a more effective learning organisation. This process is not fully possible unless all members of the organisation feel comfortable in openly participating in the post event process. Similarly, people within the organisation must also believe that they are obligated to report errors and near-misses before harm occurs. However, organisations have a responsibility to make it clear that they cannot afford a blame-free culture: some choices do warrant disciplinary action. Finding a balance between the extremes of universal punishment and blamelessness is often the first step necessary to develop a truly just and learning organisation.



### Three Lessons Learned

As we continue to learn more and more about Just Culture application across high-risk industries, it has become clear that Just Culture is at the core of managing risk and reducing harm. In sectors such as aviation though, the 'aim' of Just Culture has been traditionally more inclined towards generating open reporting and protecting the reporter. What seems to be getting lost though, is that while open reporting and protection of those reporting are central to the reduction of risk and harm, the rest of the equation is by and large missing; that of system improvement and learning.

There may be several reasons why the above is the case. As we work across multiple industry sectors, the importance of systematic learning is emphasised everywhere, yet concrete examples of this actually occurring are elusive.

Where there is a more singular focus on reporting and protection of the reporter, we are left to wonder as to whether system improvement and learning are actually occurring?

We offer the following three issues as possible reasons why there may not be as great a degree of systemic learning as is hoped for:

- Where Just Culture is perceived or positioned as 'just' a part of the safety reporting toolkit, then we have to look at the ownership and engagement of the system improvement functions within an organisation. If Just Culture is mainly about safety reporting, then once an investigation into an adverse report or event occurs, there is a natural degradation of the organisations desire to 'fix' whatever was identified as systemic based on the report or the adverse event. In other words: "Just Culture worked, we got our report."
- While aviation and other high-risk industries have collectively focused much effort on better application of justice over the years, the connection between learning systematically from the causal analysis/investigative process and the application of justice is less clear. Better systems of workplace justice should enable better learning. We see the further development of this skill set (specifically development and measurement of the effectiveness of risk mitigation strategies) as a key area for organisational improvement. Aviation, in particular, has a significant opportunity to accelerate this development due to global Safety Management System (SMS) requirements.

SMS mandate demonstrable Safety Risk Management (SRM) capability development and this is an area on which global regulatory agencies are starting to place more focus.

- The fully intended application of Just Culture is a values-based effort i.e., achieving a high degree of alignment of people's choices around organisational values so that an organisation can learn as much as possible about all types of risk in its business. This historically, has not been within the scope of responsibility of an organisation's safety department. It has only been very recently that the broader role of an organisation's senior leadership (including its HR functions) are now being brought to bear to try to answer the question: how do we get more value from our Just Culture efforts and become an organisation that systematically learns? Once this mandate of alignment around values is accepted by an organisation, then the nature of the Just Culture implementation efforts shift from "are we getting safety reports?" to "are our people making choices in alignment with our values?" These are two very different perspectives to approach Just Culture implementation.

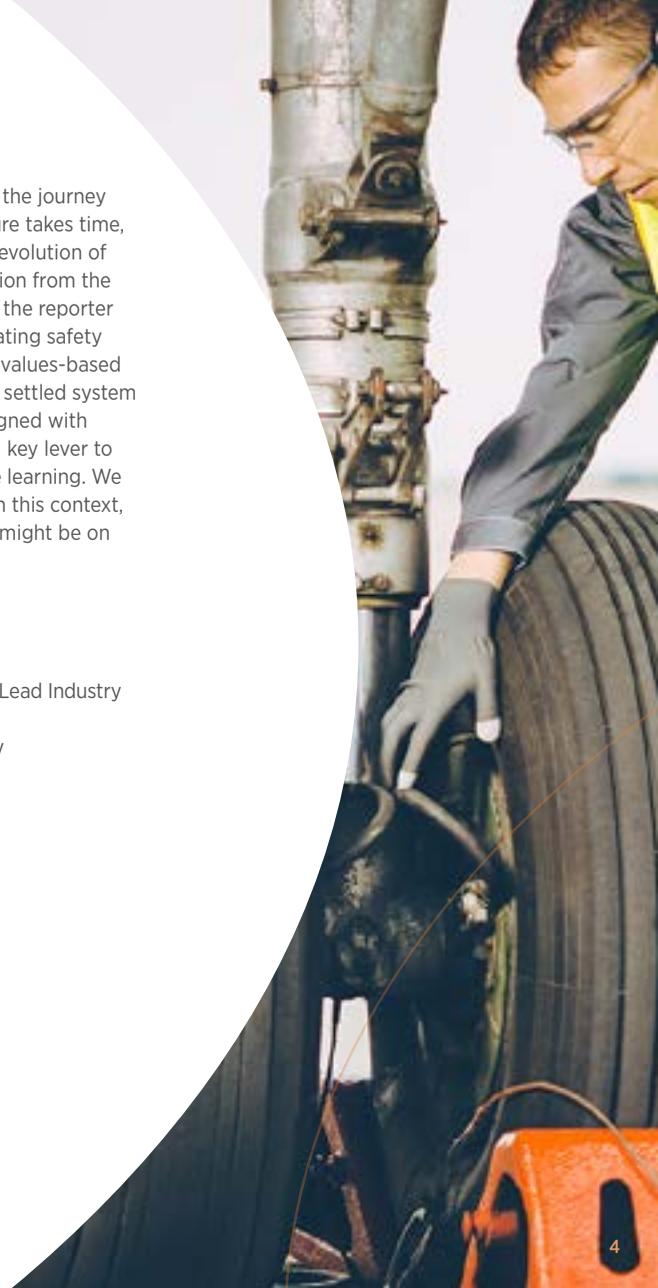
### Conclusion

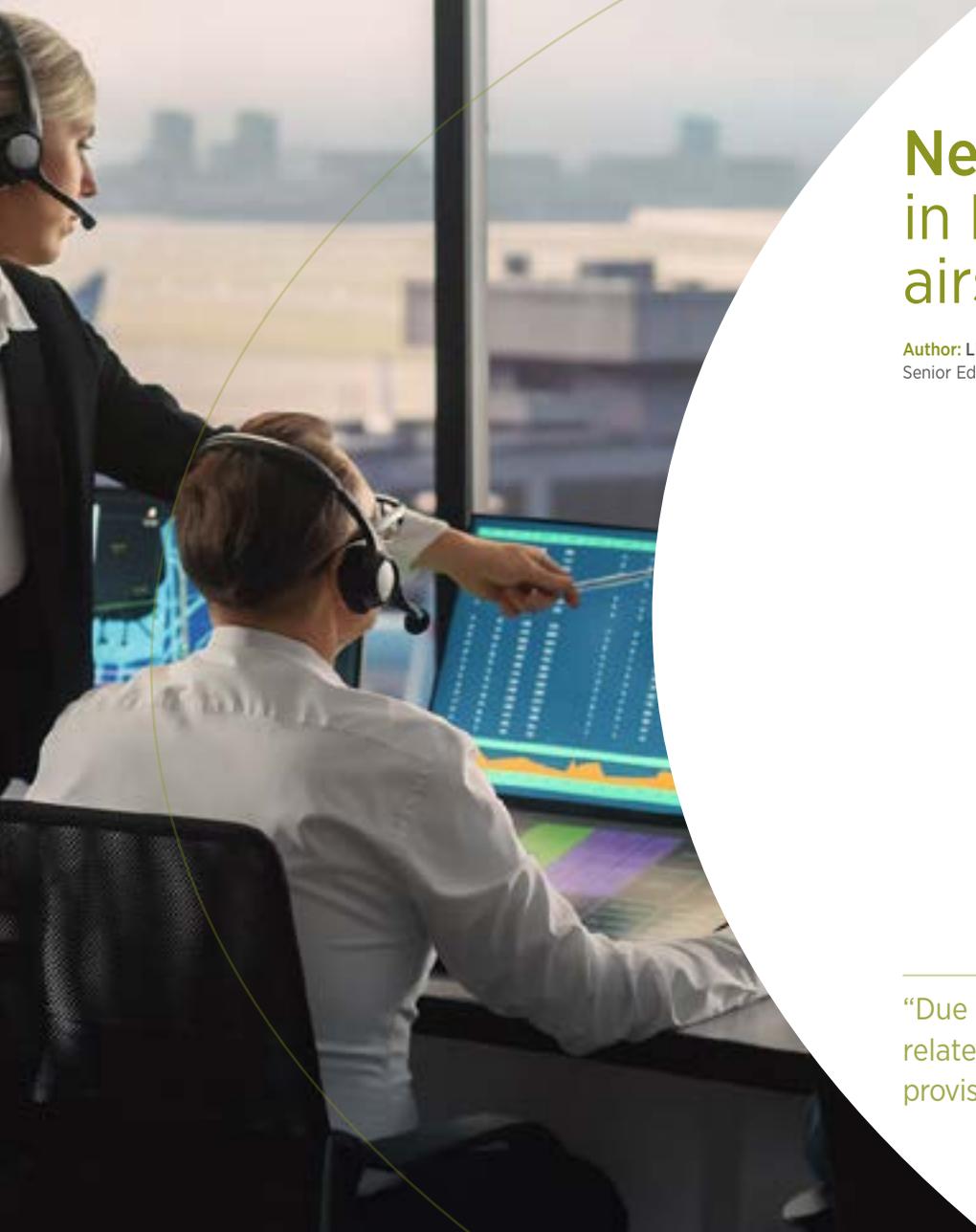
Acknowledging fully that the journey towards a truly Just Culture takes time, we recognise the natural evolution of Just Culture implementation from the earlier days of protecting the reporter for the purpose of stimulating safety reporting, to becoming a values-based proposition. One where a settled system of workplace justice is aligned with organisational values as a key lever to enable better, sustainable learning. We honour the efforts of all in this context, regardless of where they might be on the journey.

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# New risks in European airspace\*

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Russia's invasion of Ukraine has created new aviation safety problems, including those associated with flights by unidentified aircraft, disturbances in GPS signals, and the use of non-standard air traffic routings, the European Union Aviation Safety Agency (EASA) says.

The invasion has also been aggravating existing issues, including an increased threat of cosmic radiation because of new routes that are longer, at higher altitudes or closer to the North Pole, EASA said in its "Review of Aviation Safety Issues Arising From the War in Ukraine," published in April.

The review identifies 20 safety issues reported by EASA stakeholders and, in a few cases, describes actions intended to mitigate the risks; in other cases, mitigating actions are still being identified.

"Due to the specifics of the crisis, many safety issues are related to airspace management and air navigation service provision, such as airspace infringements by military drones."

"Other issues relate to security, such as cyber-attacks, and there are potential continuing airworthiness issues due to the sanctions. Human performance aspects such as skills and knowledge degradation also appear as the conflict follows on from problems created during the COVID-19 pandemic."

The issues were grouped into seven categories: security, infrastructure and equipment, air traffic management and navigation service provision, human performance, management systems, energy crisis impact, and health and environment.

## **Mistaken Identification**

The security issues included an increase in cyber-attacks associated with the conflict; possible mistakes by military forces in identifying civil aircraft, leaving them vulnerable to missile attacks; and separation from unidentified aircraft, especially those in neutral waters that provide Russia with access to Kaliningrad and the Baltic Sea.

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"Due to the specifics of the crisis, many safety issues are related to airspace management and air navigation service provision, such as airspace infringements by military drones."



Separation issues have resulted in increased workload for air traffic controllers.

Another issue involved military forces' use of electronic warfare systems, which could disrupt GPS signals and interfere with the operation of nearby aircraft. The report warned that pilots should be aware of the risk, which might be temporary, and added that flight planning should include awareness of contingency procedures in case of a loss of signals. EASA's recommended mitigating actions are discussed in EASA Safety Information Bulletin (SIB) 2022-02, "Global Navigation Satellite System Outage Leading to Navigation/Surveillance Degradation."<sup>1</sup>

Infrastructure and equipment issues included a warning that the invasion might lead to shortages of spare parts and other equipment needed by the European aviation industry, or to an increase in their prices. "This is especially valid if components are manufactured in countries directly affected by the crisis or geopolitically aligned with Russia."

The conflict has increased the risk of airspace infringements by military drones and aircraft operating in nearby conflict zones, resulting in losses of separation and disruption of operations in nearby civil airspace.

In addition, air traffic management and navigation services are at risk during unexpected military flights, adding, "This could increase risks to commercial operations in certain areas. Unusual traffic types such as formation flights, aircraft refuelling and others may increase in certain areas. Overall, this will increase sector workload."

Other risks include the possibility that crews of civil aircraft will unknowingly enter prohibited or restricted airspace along the Ukrainian border and that traffic congestion will occur on some routes, resulting in increased workload for both flight crews and air traffic controllers.

### Human Performance

The report noted that the downturn in air traffic caused by the pandemic has been prolonged by the Russian invasion and that, because of the low demand for flights, airline personnel returning from furloughs will need additional training not only because their skills deteriorated during their lengthy layoffs but also because they will be returning to more complex operating environments. EASA guidance on handling the issue is available on its webpage dealing with skills and knowledge degradation.<sup>2</sup>

In addition, crewmembers are likely to experience more fatigue than usual because of longer routes that have been designed to avoid Russian airspace and conflict zones.

Those new routes are likely to include alternate airports that are less familiar to flight crews, adding that stops at intermediate destinations also were likely to involve approaches and landings at unfamiliar airports and other unfamiliar procedures. "Takeoffs and landings are critical phases of flight; therefore, additional takeoffs and landings add to existing flight safety risks," the report said.

If fighting continues for a lengthy period, it could cause new financial strains for airlines and other organisations because of reduced demand for travel, distortions in routing and possible new investments on security measures.

To find out more:

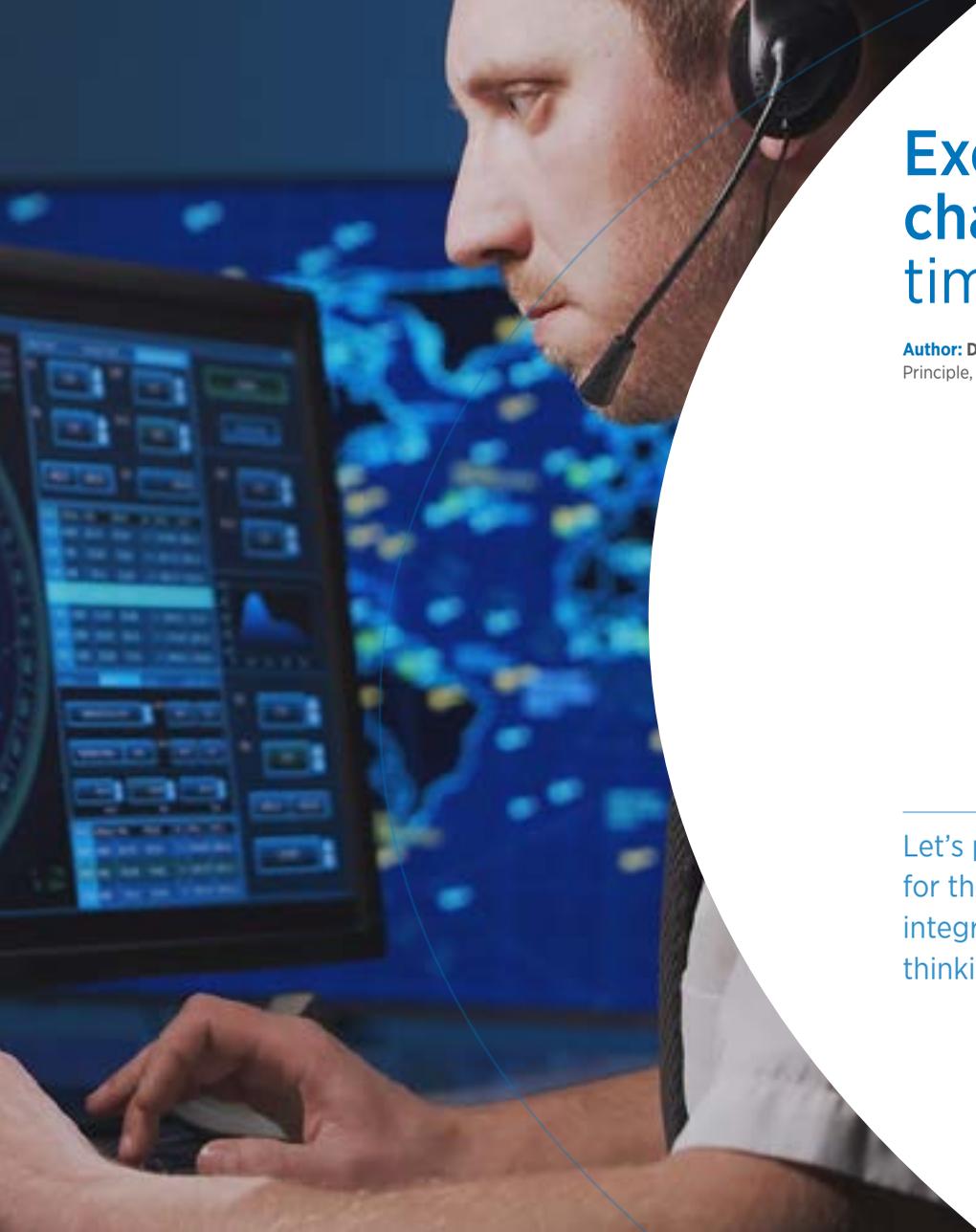
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<sup>1</sup>Article originally published in *Aerosafety World* – May 2022

<sup>1</sup><https://www.easa.europa.eu/downloads/136453/en>

<sup>2</sup><https://www.easa.europa.eu/community/topics/skills-and-knowledge-degradation>





# Exciting or challenging times?

**Author: Dave Malins**  
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Let's prepare airworthiness for the future and greater integration to total system thinking.

So here we are post the summer demands of an aviation industry that continues to recover from the effects of the enduring COVID-19 pandemic and now faces further challenges from the broader global economic state.

For many European and UK organisations, they continue to adapt to finding a steady state following the UK's decision to leave the EU and the EASA system. Add all this together, give it a shake and some might say we have a volatile cocktail for our aviation system being compromised and an increasing risk profile.

The media has well-documented the status of the challenges industry faces, the human and organisational resilience being at the core of many of these. I am sure most know very well the fragility the human can have in a system that is stretched, yet we continue to expect more of these souls. It is true that the industry needs to stem their losses and return to viable, profitable businesses, but there appears limited patience to transition between these two states and the pressure continues to rise.

If you wish to throw in a dash of 'unknown' to the cocktail of challenges, why not add in the need to be relevant and viable to the net zero environmental and new technology challenges? Both are accelerating their merry way to market and present further demand on potentially challenged resources, who can least do with their eye being taken of the current operational ball.

These are challenging yet strangely exciting times for our industry, but when I reflect on my time as Head of Airworthiness at the UK CAA, it was evident that there were huge differences in how many accountable managers connected with the risks airworthiness approvals present to their organisations. Perhaps, this is understandable when you consider the breadth from initial airworthiness through continuing airworthiness, through to the human elements of licensing and training too. How do you consider the impact of an unsafe designed product getting to market?



What is the impact of an MRO releasing a product that has been tested using the incorrect procedures or test equipment? What is the impact of a tier 3 supplier deviating from the design specification?

The reality is these events can and have occurred. However, with an effective SMS, accountable managers have their best opportunity to hear, see and effectively manage emerging and live risks within their organisations. If we look at this through the bow-tie lens then we need to be clear that the airworthiness barriers on the left hand side of our diagram are effective and we are not leaving mitigation to the final barrier; yes, the pilot.

### Grabbing the Opportunity

It's well known that global accident rates have improved since the introduction of ICAO and our industry now has to drive those marginal gains to prevent negative drift and improve. The chart below shows the positive impact regulation and standards has had in driving out common causes of events from the 1970's into the 2000's.

### Airline Accidents Per 1 Million Flights 1977 - 2017

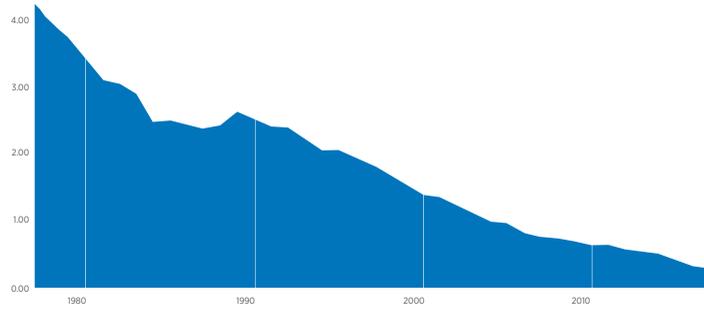


Chart Credit - Aviation Safety Network

The introduction of an effective SMS, to airworthiness, will be a positive step in driving further gains, but it is incredibly important that this comes from a safety baseline; yes, compliance!

If you consider where our regulatory systems and rules stem from, it is true to say most have grown from our learnings from the events and were established to prevent reoccurrence. So why do I mention compliance? Experience suggests there are still many organisations that struggle with maintaining this safety baseline, so adding SMS is going to perhaps be another distraction or maybe the catalyst to drive an effective management system. A choice for accountable managers to consider?

Perhaps the biggest chance of success here is having a culture that enables airworthiness staff, engineers, designers, production staff to report, not only actual events but those near misses. Achieving the same levels of reporting to other areas of aviation systems would be a good step forward. Put this into context, let's think what an accountable manager might have done, with their eyes open to the test equipment being unavailable or maybe a batch of products having failed an incoming quality test.





### Less revolution, let's focus on the evolution

It's true to say the total aviation system has had its own management and quality systems in order to maintain a level playing field, and this has proved effective in keeping rates of events and accidents down. But now think about the benefits of integrating SMS across all airworthiness approvals, gaining insights to design, production, maintenance and continuing airworthiness management. Do you have that level of visibility today?

The good news is as part of the aviation systems continuous improvement and ICAO ANNEX 19, Safety Management System, the advent of SMS in airworthiness is knocking at your organisations door.

For many, the advent of SMS is not a revolution, for operators there has been a general acceptance of wrapping their operational SMS around their total system, including ground operations, and airworthiness approvals. Perhaps, there is a level of maturity within these organisations to deliver a deeper dive into their systems and supply chains, capturing those early signs of hazards to their operations. How assured are you that your supply chain is supply

conforming products, or overhauled products that have been tested using the correct procedures and equipment?



For those airworthiness organisations joining the journey of SMS introduction, fear not, there is still time to prepare your organisations. ICAO Annex 19 provides global guidance to your National Aviation Authority for establishing your system, considering four key factors as outlined in the chart.

Perhaps key to success for those new to the party is establishing a culture that permits its staff to report those events that expose risk and hazards within an organisations scope and how you connect these with the total aviation system.

Airworthiness is not immune from risk, and there is a role to play in ensuring that risk is mitigated through effective barriers before we leave it to the pilot and that final line of defence.

### Let's prepare airworthiness for the future and greater integration to total system thinking

The aviation world is evolving more rapidly than since the Wright Brothers first pioneered that first flight in 1903. Organisational pressures to be relevant and viable have perhaps never been greater. The risk cocktail becomes more volatile if we consider the challenge of meeting the net zero challenges and the need to expedite new technologies to market. Aviation risk continues to exist and evolve, and airworthiness requires to be integrated, understood and mitigated within the total system.

Today's compliance is the baseline for a safer world, the introduction of SMS within airworthiness to identify risks and mitigate them is an evolution as part of the aviation system continuous improvement, but let's not forget the baseline.

As accountable managers of either operators, or the approved supply chains, have you got the true risk picture at your fingertips? If you have visibility you can steer away from the risks, blindfolded you can do little.

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It's well known that global accident rates have improved since the introduction of ICAO.





# Are we over complicating safety?

**Author: Simon Harlow**  
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Many courses on aviation safety begin with a discussion on the meaning of safety, always an interesting conversation that everyone has a personal view on what is, and is not, safe.

The ICAO defines safety as “The state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.”

However, whilst ICAO suggests an acceptable level of safety as a probability of a catastrophic accident of  $5 \times 10^{-8}$  per event (5 in 100 million), the reality is that what might be acceptable to one person is not acceptable to another, furthermore following accident, or injury, one’s assessment of the chance of reoccurrence changes as does the acceptability of harm.

In practice, this change in acceptability occurs at a societal level also, meaning that in many ways the Acceptable Level of Safety is a moving target. This poses a problem for every industry, including aviation, as it is only following an accident or incident that one can truly discover whether society, investigators and the legal profession agree with the acceptability of a risk assessment and that is, of course, part of the safety space conundrum.

## Safety Management Systems

A Safety Management System is dependent on four elements as described by ICAO. Safety Policy defines how the organisation operates; Safety Promotion and Training ensures that everyone is aware of what is expected of them and how safety is managed within the organisation. Safety Risk Management (SRM) and Safety Assurance (SA) are the two halves of the safety engine, SRM works with unknowns, reacting to occurrences, identifying hazards and mitigating risks, SA works with the knowns, through assurance process, ensuring the procedures that are in place are effective and are followed.

Between the SA and SRM, they provide the performance data that a modern manager requires to make risk-informed decisions. It is vital, therefore, that SA and SRM are applied equally and consistently across an organisation and between departments, without siloed behaviours, procedures, or data.



In an ideal world, we would share our data fully to allow an industry-wide picture, but whilst significant progress has been made regarding safety information sharing in the industry through industry trade bodies and between operators, it still has a long way to go to become an established norm. It should be unacceptable to have an accident or occurrence that was preventable had another operator who has experienced a similar accident shared their knowledge.



## Legislation

Part of society’s contribution to safety are the suites of safety legislation covering aviation disciplines including Initial Airworthiness, Continuing airworthiness, maintenance, flight operations, ground operations, air traffic management and aerodromes, and in addition ‘conventional’ Health, Safety and Environment. A natural result of the broad range of disciplines subject to legislation is that publication and review simply cannot be in a single document nor concurrent; add to the mix, Health, Safety and Environmental legislation originating from different governmental arms and total alignment is impossible.

The variation in legislative documents tends to create specialisms which can lead to a silo mentality even within an operation, these silos posing a threat to the consistency of risk data used to make informed decisions by the senior management. Accepting that legislation cannot be fully harmonised, it rests with individual organisations to create safety processes and ways of working that break down silo mentalities and are effective across the business.

## Models

Aviation is complex, whilst we can create models of causation and processes that represent our operating environment, they are nothing more than approximations—a model may be complicated but it cannot be complex. A recent article published (in a business social media platform) asserts that “The bow-tie is premised on the myth of in and out metaphor, ...” This is immediately concerning. Are we really managing safety with something that is so flawed? The reality is, of course, different. The author, a specialist in the field of semiotics, the study of signs and symbols, where ‘myth’ has a very specific definition, is suggesting that the “symbol” of the bow-tie has such power that its users believe it to be the reality of an accident sequence. This is not an entirely unreasonable assertion, certainly there are some who are not fully conversant with the bow-tie who see it as a model rather than a structured method to assess risk where a quantitative approach is not possible or desirable.

But what is the safety issue here? Is it a problem that some people consider that safety tools are in fact working accident models? Or is it that social media allows non-peer reviewed articles to cast doubt on established safety processes, that whilst imperfect, assist in the understanding and management of risk?

## A Complicated Summary

As described above, we, as an industry, produce complicated models, complicated ways of working, complicated legislation, and complicated safety tools but they can never fully map the complexity of aviation and deliver at best a holistic risk environment picture to support risk-based decision-making. The additional contribution of the moving target that is society’s Acceptable Level of Safety, leaves management teams with a challenge. We cannot afford to allow siloed behaviour; we must strive toward Integrated Safety Management Systems.

An integrated system using shared policies, shared safety promotion and training, with Safety Risk Management and Safety Assurance systems that span the organisation, encompassing all safety risk, aviation and non-aviation, is the only way that we can ensure a continuity of effective performance data and allow risk-based decision-making. A data-driven Safety Management System integrated at all levels of an aviation business enables effective risk-based oversight.

More than all of this we must hold our course, remembering that neither social media platforms nor the rest of the internet is peer-reviewed. We must have faith in what we know and develop our systems as an industry-based on evidence and experience.

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# Risk mitigation measures for potential AOG events

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In September 2022, the International Civil Aviation Organization (ICAO) flagged Russia with a significant safety concern (SSC) with respect to the country's ability to properly oversee commercial aircraft under its jurisdiction and to provide essential services to foreign aircraft operators.

As a reminder, a significant safety concern (SSC) does not necessarily indicate a particular safety deficiency in the air navigation service providers, airlines (air operators), aircraft or aerodrome, but, rather, indicates that the state is not providing sufficient safety oversight to ensure the effective implementation of applicable ICAO standards.

While there are many factors surrounding aviation in Russia right now, the focus of this article is to understand the ramifications and potential risk mitigation measures of aircraft/airlines that have special authorisation to fly into Russia or that could potentially be involved in a Russian airport or airspace.

The problem is compounded by the fact that current sanctions have blocked the importation of essential aircraft spare parts from suppliers including Boeing and Airbus.

This may impact the ability of airlines operating within this environment to source essential services and spare parts in case of a diversion or an AOG in that country. Therefore, operators must implement measures to adapt traditional processes and procedures to understand and mitigate the risk of a potential AOG in Russia and other states involved in the Russia-Ukraine conflict. This is accomplished by the creation of a safety case and understanding the AOG risk per aircraft assigned to fly to Russia.

## Considerations for AOG Events

An AOG event is one of the most costly occasions within an operation. Moreover, these events pose potentially significant costs to the airline in order to get passengers where they need to be, denied boarding compensation, additional maintenance costs as well as network effects on subsequent flights.



As we know, AOGs are caused by technical defects on the aircraft which are required to be addressed prior to the aircraft taking off. Being able to monitor the risk of such technical failures occurring on an aircraft can help significantly to mitigate the impact of an AOG event or even prevent the event from happening.

In normal operations, costings contribute significantly to the risk an operator incurs. Typical industry factors an operator has to contend with relating to AOG-related risk, the main factors affecting the AOG cost are as follows:

- Type of part agreement or contracts
- The number of passengers
- Components and aircraft reliability
- Methods of providing the parts (repair, new buy, loan, exchange)
  - » Part authentication
- Part forecasting
- Alternative Aircraft
- Maintenance programmes for some parts
- Part capability
- Human error when determining the failure'

### Operator Considerations

Most airlines and operators have implemented forecasting processes for scheduled maintenance using hours, cycles and other combination of aircraft operational parameters. It is more difficult with unscheduled maintenance events because it requires not only detailed analysis of historical data related to aircraft and parts usage, failure and replacement patterns and reliability calculations, but also sophisticated algorithms to create failure models for a part and/or for a given operating condition. Ultimately, the operator must determine and understand the probability that a part will fail under a given operating condition after certain numbers of hours or cycles.

Key to understanding the failure probability is the analysis of failures by the OEM, which drives their published maintenance information. Analysis by the operator can provide a guide to appropriate consignment stock holdings and by assessing availability down route, can perhaps support suggested spares (consumables) to be carried on board in the case of an AOG occurrence in Russia.

Unscheduled maintenance forecast when combined with the scheduled maintenance forecast can create a predictive forecast that can help answer the probability question. This predictive forecast will allow operators to create a proactive and optimal maintenance plan for parts so that the unscheduled failure events become few and far between, thereby minimising AOG occurrences.

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Most airlines and operators have implemented forecasting processes for scheduled maintenance.



\*Adapted from a 2016 study on the B777 fleet and using the Analytic Hierarchy Process Technique ...American Scientific Research Journal for Engineering, Technology, and Sciences (2016) Volume 25, No1



### Safety Case Creation

Creating a safety case allows the operator to assess the safety implications and safety hazards involved in potential AOG events or unexpected diversion in order to determine the action necessary to reduce the risk of those hazards to acceptable levels.

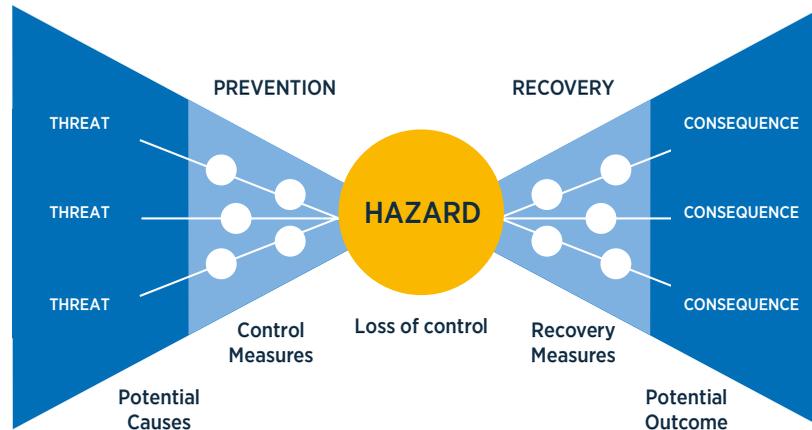
Elements include:

- Scope and requirement
- Risk management (bow-tie recommended)
- Risk assessment criteria
- Risk control

### Create AOG Risk Per Aircraft

To understand the AOG risk for the aircraft assigned to the selected routes, operators will need to conduct the following steps.

- Use existing Aircraft Health Monitoring Systems (AHMS) to predict potential failures per aircraft
- Use the MEL to determine impact of a technical failure on the airworthiness of the aircraft and MEL alleviations
- Assess how potential/already existing deferred maintenance issues influence the risk of AOG
- Prepare failure probability planning
- Plan for network disruption and ensure fleet type/schedule for specialised ops to Russia or airspace around it



Based upon the results of the safety case and AOG risk per aircraft, risk mitigation measures will centre around the following areas and each operator will need to create operational processes and procedures to address each of the following areas (not all inclusive).

- Flight Plan
  - » Special considerations on the flight plan to ensure that the risk of landing at a conflict zone is minimised as much as possible, taking into account published procedures and relevant NOTAMs
- Personnel – plan to have extra personnel onboard, particularly:
  - » Technical staff
  - » Additional crew members
- Plan to carry additional aircraft consumables (the various items that are used for maintenance, repair, and general flight operations)
  - » What can and will be carried onboard?
  - » Based upon failure probability planning
- Plan for additional safety measures, such as
  - » Round trip fuel
  - » Ground support/passenger handling at airports around the area
  - » Accommodations, food/beverages
- Prepare a communications plans for personnel and stakeholders who may be impacted by the AOG

- » Passenger
- » Insurers/brokers
- » Employees
- » Other Stakeholders (vendors, suppliers, codeshare partners, etc.)

### Insurer Considerations

When an airline or other aircraft operators face the risk of an AOG or a diversion into Russia and related areas, it is essential that risk mitigation measures are in place. They are key to demonstrate that they have managed the risk to the best of their ability. These include the measures identified above.

Questions by the market can revolve around the following topics:

- Check for completed safety case (or bow-tie)
  - » Has the operator implemented risk mitigation measures to ensure residual risk is at an acceptable level?
- Check for completed AOG risk for the aircraft (and alternate aircraft identified)
  - » Is the AOG risk comprehensive and inclusive?
- Check for acceptable implemented processes surrounding flight plans, personnel, consumables, considerations and communications.
  - » Has the operator fully scoped the processes described above to ensure potential risks have been

identified and mitigated?

In particular,

- Are the routes considering conflict zones, restricted airspace and relevant NOTAMs?
- Are technicians on board required?
- Are extra flight crew required?
- Have Additional MEL items been taken into consideration?
- Appropriate facilities and installations to cater for ground handling and passenger protection measures have been identified and are ready to be used?

### Conclusion

As we are all aware, an AOG event is one of the most disrupting events to an operation. Add to this, the complexity of managing the AOG in the intricate Russian environment, operators must fully understand the risks involved when operating into this airspace. Through fully implemented and mature safety and risk management systems and programmes, the risk exposure to the operation can be mitigated to the extent possible to reach an acceptable level of residual risk.

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