

Organizational Culture: A Player in Flight Test Safety?

Tutorial: SMS Policy and Objectives

**2022 Flight Test Safety Workshop
Palm Beach Gardens, FL
3-5 May 2022**



Tutorial Objectives

1. Gain insight into organizational “positive safety” culture;
2. Understand essential (required) elements of Safety Policy;
3. Boost knowledge of safety objectives and measurement;
4. Become familiar with voluntary standards



Scenario

A test crew was performing up & away HQ testing and experienced a flap Nz exceedance. It's only 0.2G over the published test card limitation so they decide to continue. You, as the test safety manager, find out a week later overhearing a water-cooler conversation about particularly forceful pilot personalities.

What might this say about your organizational culture?



Let's Talk Culture

- ▶ How is it defined?
- ▶ What are some characteristics?
- ▶ How is it cultivated?
- ▶ Who is responsible/accountable?
- ▶ Can it be measured?
- ▶ Should it be measured?



- ▶ Safety Culture – thoughts from the crowd..

How is it defined?



Definition of Culture / Safety Culture

An organization's culture consists of its values, beliefs, legends, rituals, mission goals, performance measures, and sense of responsibility to its employees, customers, and the community.

Ref: Manuele, Fred A., On the Practice of Safety, John Wiley & Sons, 2003
Hoboken, NJ.

A safety culture consists of the shared values, actions, and behaviors that demonstrate a commitment to safety over competing goals and demands. In the desired safety culture, people acknowledge their accountability and act on their individual responsibility for safety. They trust, use, and rely on the organization's processes for managing safety. There is good communication in the organization, and personnel continue to learn and develop through training and coaching.

Ref: FAA Order 8000.369B



Dr. James Reason on Culture..

“It is worth pointing out that if you are convinced that your organization has a good safety culture, you are almost certainly mistaken.... A safety culture is something that is striven for but rarely attained.”



- ▶ Safety Culture – thoughts from the crowd..

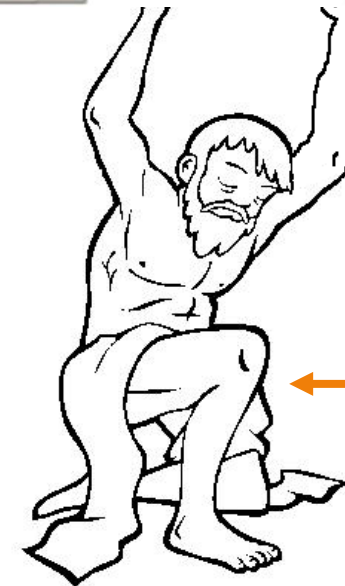
Cultivated How?

Who is Responsible/Accountable?





SMS -
Just Another
3-Letter Acronym?



← safety guy..

Without Positive Culture, SMS is DOA....

Safety Culture Indicators

GENERATIVE

Chronic unease
Safety seen as a profit centre
New ideas are welcomed

PROACTIVE

Resources are available to fix things before an accident
Management is open but still obsessed with statistics
Procedures are “owned” by the workforce

CALCULATIVE

We cracked it!
Lots and lots of audits
EHS advisers chasing statistics

REACTIVE

We are serious, but why don't they do what they're told?
Endless discussions to re-classify accidents
Safety is high on the agenda after an accident

PATHOLOGICAL

The lawyers said it was OK
Of course we have accidents, it's a dangerous business
Sack the idiot who had the accident

Doc 9859



Doc 9859

Safety Management Manual

Fourth Edition, 2018



Approved by and published under the authority of the Secretary General

INTERNATIONAL CIVIL AVIATION ORGANIZATION



Culture – Bottom Line..

Strengthened safety culture – An organization’s safety culture can be strengthened by making visible the commitment of management and actively involving personnel in the management of safety risk. When management actively endorses safety as a priority, it is typically well-received by personnel and becomes part of normal operations.

Source: Doc 9859



SMM Chapter 3 – Safety Culture

[Safety culture]...is reflected in the extent to which individuals and groups are:

- a) aware of the risks and known hazards faced by the organization and its activities;
- b) continuously behaving to preserve and enhance safety;
- c) able to access the resources required for safe operations;
- d) willing and able to adapt when facing safety issues;
- e) willing to communicate safety issues; and
- f) consistently assessing the safety related behaviors throughout the organization.



Table 5. Examples of actions that will enable or disable a positive safety culture

<i>Element</i>	<i>General Description</i>	<i>Enablers</i>	<i>Disablers</i>
Commitment to safety			
	<p>Commitment to safety reflects the extent to which senior management within the organization have a positive attitude towards safety and recognizes its importance. Senior management should be genuinely committed to achieving and maintaining a high level of safety and give employees motivation and the means to do so also.</p>	<ul style="list-style-type: none"> • Management leads safety culture and is actively motivating its employees to care for safety, not only by talking but by acting as role models • Management provides resources for a range of safety related tasks (e.g. training) • Continuous safety management oversight and governance is established 	<ul style="list-style-type: none"> • Management is actively demonstrating that profit, cost reduction and efficiency come first • Investments to improve safety are often made when required by regulations or after accidents • Neither oversight nor governance with regard to safety management is established
Adaptability			
	<p>Adaptability reflects the extent to which employees and management are willing to learn from past experiences and are able to take action necessary in order to enhance the level of safety within the organization.</p>	<ul style="list-style-type: none"> • Employee input is actively encouraged when addressing safety issues • All incidents and audit findings are investigated and acted upon • Organizational processes and procedures are questioned for their safety impact (high extent of self-criticism) 	<ul style="list-style-type: none"> • Employee input on safety issues is not sought from all levels of the employees • Actions are often taken only after accidents or when required by regulations • Organizational processes and procedures are considered adequate as long as no accident occurs (complacency or lack of self-criticism)



Element	General Description	Enablers	Disablers
		<ul style="list-style-type: none"> A clear proactive approach to safety is demonstrated and followed 	<ul style="list-style-type: none"> Even when an accident occurs the organization is unwilling to question itself. A reactive approach to safety is demonstrated and followed.
Awareness			
	<p>Awareness reflects the extent to which employees and management are aware of the aviation risks faced by the organization and its activities.</p> <p>From a State perspective personnel are aware of both the safety risks induced by their own activities and the organizations they oversee. Employees and management should be constantly maintaining a high degree of vigilance with respect to safety issues.</p>	<ul style="list-style-type: none"> An effective way of hazard identification has been established Investigations seek to establish the root cause The organization stays abreast of important safety improvements, and adapts itself accordingly as necessary The organization systematically evaluates if safety improvements are implemented and working as intended Where appropriate members of the organization are well aware of the safety risks induced by their individual actions and company operations / activities 	<ul style="list-style-type: none"> No effort is spent on hazard identification Investigations stop at the first viable cause rather than seek the root cause The organization does not stay abreast of important safety improvements The organization does not evaluate if safety improvements are implemented properly Where appropriate members of the organization are not aware of the safety risks induced by their individual actions and company operations Safety data is gathered but not analysed and acted upon
Behaviour with respect to safety			
	<p>Behaviour with respect to safety reflects the extent to which every level of the organization behaves such as to maintain and improve the level of safety. The importance of safety should be recognized and processes and procedures needed to maintain it should be put in place.</p>	<ul style="list-style-type: none"> The employees motivate themselves to act safely and by acting as role models Continuous monitoring of safe behaviour is practised 	<ul style="list-style-type: none"> Employees are not punished for intentional unsafe behaviour to the benefits of their own or other interests

Element	General Description	Enablers	Disablers
		<ul style="list-style-type: none"> • Intentional unsafe behaviour is not tolerated by management and colleagues • The working conditions support aviation safety at all times 	<ul style="list-style-type: none"> • The working conditions provoke behaviour and work arounds that are detrimental to aviation safety • No monitoring of aviation safety within the organization's products or services is practised • Constructive criticism to the benefit of aviation safety is not welcomed
Information			
	<p>Information reflects the extent to which information is distributed to all necessary people within the organization. Employees should be enabled and encouraged to report aviation safety concerns and receive feedback on their reports. Work information related to aviation safety has to be communicated meaningfully to the right people in order to avoid miscommunication that could lead to hazardous aviation system situations and consequences.</p> <p>The State is open to share aviation safety related information to all service providers.</p>	<ul style="list-style-type: none"> • An open and just safety-reporting environment exists. • Employees are provided with safety-relevant information in a timely manner in order to allow for safe operations or decisions to be made. • Management and supervisors regularly check whether safety-relevant information is understood and acted upon • Knowledge transfer and training with regard to aviation safety is actively practiced (e.g. sharing of lessons learned) 	<ul style="list-style-type: none"> • A blaming safety reporting environment is evident • Safety-relevant information is withheld • Safety communication is not monitored for its effectiveness • No knowledge transfer or training is provided

<i>Element</i>	<i>General Description</i>	<i>Enablers</i>	<i>Disablers</i>
Trust	<p>Employee contribution to safety thrives in a reporting environment that fosters trust - trust that their actions or omissions, commensurate with their training and experience, will not be punished. A workable approach is to apply a reasonableness test – i.e. is it reasonable that a person with the same level of experience and training might do the same thing. Such an environment is fundamental to effective and efficient safety reporting.</p> <p>Effective safety reporting systems help to ensure that people are willing to report their errors and experiences, so that States and service providers have access to relevant data and information that is necessary to address existing and potential safety deficiencies and hazards. These systems create an environment in which people can be confident that safety data and safety information will be used exclusively for improving safety.</p>	<ul style="list-style-type: none"> • There is a distinction between acceptable and unacceptable behaviour, which is known to all employees. • Occurrences (including accidents and incidents) investigations consider individual as well as organizational factors. • Good aviation safety performance is recognized and rewarded on a regular basis. • There is willingness among employees and operational personnel to report events in which they have been involved. 	<ul style="list-style-type: none"> • There is no identifiable distinction between acceptable and unacceptable behaviour. • Employees are systematically and rigorously punished for human errors. • Accident and occurrence investigations focus on individual factors only. • Good safety performance and safe behaviour is taken for granted.

Safety culture is subject to many influences and organizations may choose to assess their safety culture to:

- a) understand how people feel about the organization and how importantly safety is perceived;
- b) identify strengths and weaknesses;
- c) identify differences between various groups (subcultures) within an organization; and
- d) examine changes over time (e.g. in response to significant organizational changes such as following an accident, a change in senior management or altered industrial relations arrangement).

Source: Doc 9859



There are a number of tools which are used to assess safety culture maturity, usually in combination:

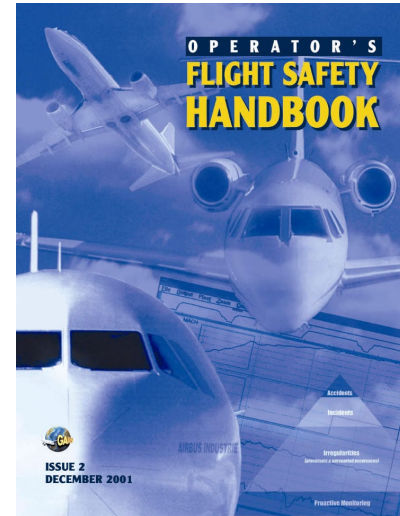
- a) questionnaires;
- b) interviews and focus groups;
- c) observations; and
- d) document reviews.

Source: Doc 9859



Methods of measuring safety culture

- ▶ Within GAIN Flight Safety Handbook
 - Questionnaires
- ▶ Other methods?
 - CAS/MCAS
 - Command Climate Surveys



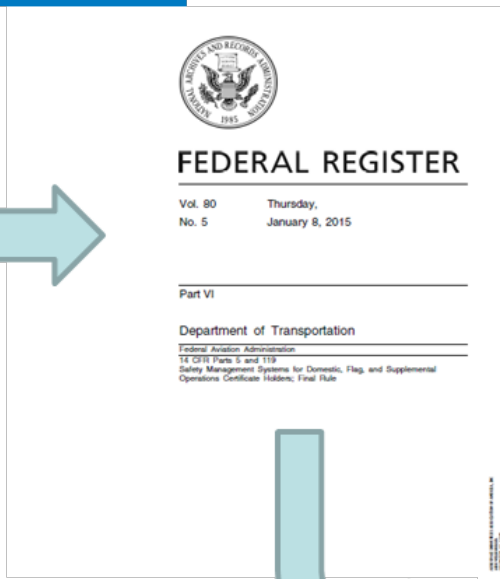
APPENDIX D SAFETY SURVEYS & AUDITS





ICAO Annex 19

SMS for Design and Manufacturing



14 CFR Part 5



National Aerospace Standard (NAS) 9927



NAS9927 Safety Culture and Safety Mgmt

- ▶ “...key aspect that is essential to safety performance is the culture of the organization.”
- ▶ “The concept of safety culture underlies safety management and is the basis for the SMS requirements of Part 5.”



More NAS9927 on Culture

- ▶ “...product of the values and actions of the organization’s leadership as well as the results of organizational learning.”
- ▶ “Cultures are not really “created” or “implemented;” they emerge over time and as a result of experience.”
- ▶ “...management framework that facilitates decision making and shapes the environment which employees work is crucial to organizational performance...”



NAS9927 Buzzkill..

- ▶ “...part 5 does not include any requirement to have, measure, or assess safety culture.”
- ▶ “It is not intended that any D&M organization be required to demonstrate a “positive” safety culture.”



Appreciation Strategy Humility
Commitment Responsibility
Leadership
Integrity Listening
Honest Communication
Values Purpose Determination
Passion Principles



▶ Available Auditing SMS Protocols

- Voluntary SMS Assessment – FAA AIR
 - Follows CFR Part 5
 - FAA VSMS Letter of Acceptance for D&M Organizations
- SM ICG
- ISBAO
- FTSC: both SM ICG & ISBAO–BASED



Safety Management System (SMS) Evaluation Tool



Version 2
April 2019

3. SAFETY POLICIES AND OBJECTIVES (Annex 19 component 1)

3.1 MANAGEMENT COMMITMENT (Annex 19 element 1.1)

Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments	
Evaluation	3.1.1	There is a safety policy, signed by the Accountable Manager, which includes a commitment to continuous improvement; observes all applicable legal requirements and standards; and considers best practices.						
	3.1.2	The safety policy includes a statement to provide appropriate resources and the organisation is managing resources by anticipating and addressing any shortfalls.						
	3.1.3	There are policies in place for safety critical roles relating to all aspects of Fitness for Duty (for example, Alcohol and Drugs Policy or Fatigue).						
What to look for								
Guidance	<ul style="list-style-type: none"> - Interview the Accountable Executive to assess their knowledge and understanding of the safety policy. - Check that the safety policy is reviewed periodically for content and currency. - Confirm that the safety policy meets the requirements. - Interview staff to determine to what extent the safety policy is known, as well as how readable and understandable it is. - Review available resources including personnel, equipment, and financial. - There are sufficient and competent personnel. - Review planned resources versus actual resources. - Check how a positive safety culture is encouraged and impacts the overall effectiveness. 							
	Present	Suitable			Operating		Effective	
	There is a safety policy, signed by the Accountable Manager, which includes a commitment to continuous improvement; observes all applicable legal requirements and standards; and considers best practices. The safety policy includes a statement to provide appropriate resources.	The safety policy is easy to read. The content is customised to the organisation. There is a process for assessing resources and addressing any shortfalls.			The safety policy is reviewed periodically to ensure it remains relevant to the organisation. The organisation is assessing the resources being provided to deliver a safe service and taking action to address any shortfalls.		The Accountable Executive is familiar with the contents of the safety policy and endorses it. The organisation is reviewing and taking action to address any forecasted shortfalls in resources.	

Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments	
Evaluation	3.1.4	There is a means in place for the communication of the safety policy.						
	3.1.5	The Accountable Executive and the senior management team promote a positive safety/just culture and demonstrate their commitment to the safety policy through active and visible participation in the safety management system.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Review how the safety policy is communicated. - Safety policy is clearly visible to all staff including relevant contracted staff and third-party organisations. - Question managers and staff regarding knowledge of the safety policy. - All managers are familiar with the key elements of the safety policy. - Evidence of senior management participation in safety meetings, training, conferences, etc. - Feedback from safety surveys that include specific just culture aspects. - Relationship with regulator and other stakeholders. - Review how a positive safety and just culture are promoted. 							
	Present	Suitable			Operating		Effective	
There is a means in place for the communication of the safety policy. The management commitment to safety is documented within the safety policy.	The safety policy is clearly visible to all staff (consider multiple sites). The safety policy is understandable (consider multiple languages). The Accountable Executive and the senior management team have a well-defined role in the safety management system.			The safety policy is communicated to all personnel (including relevant contract staff and organisations). The Accountable Executive and the senior management team are promoting their commitment to the safety policy through active and visible participation in the safety management system.		People across the organisation are familiar with the policy and can describe their obligations in respect of the safety policy. Decision making, actions, and behaviours reflect a positive safety/just culture and there is good safety leadership that demonstrates commitment to the safety policy.		

Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments	
Evaluation	3.1.6	The safety policy actively encourages safety reporting.						
	3.1.7	A just culture policy and principles have been defined that clearly identifies acceptable and unacceptable behaviours to promote a just culture.						
What to look for								
Guidance	<ul style="list-style-type: none"> - Evidence of when the just culture principles have been applied following an event. - Evidence of interventions from safety investigations addressing organisational issues rather than focusing only on the individual. - Review how the organisation is monitoring reporting rates. - Review the number of aviation safety reports appropriate to the activities. - Safety reports include the reporter's own errors and events they are involved in (events where no one was watching). - Feedback on just culture from staff safety culture surveys. - Interview staff representatives to confirm that they agree with just culture policy and principles. - Check that staff are aware of the just culture policy and principles. 							
	Present	Suitable			Operating		Effective	
	A just culture policy and principles have been defined.	<p>The just culture policy clearly identifies acceptable and unacceptable behaviours.</p> <p>The principles ensure that the policy can be applied consistently across the whole organisation.</p> <p>The just culture policy and principles are understandable and clearly visible.</p>			There is evidence of the just culture policy and supporting principles being applied and promoted to staff.		<p>The just culture policy is applied in a fair and consistent manner and staff trust the policy.</p> <p>There is evidence that the line between acceptable and unacceptable behaviour has been determined in consultation with staff and staff representatives.</p>	

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	3.1.8	Safety objectives have been established that are consistent with the safety policy and they are communicated throughout the organisation.						
	3.1.9	The State Safety Programme (SSP) is being considered and addressed as appropriate.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Assess whether the safety objectives are appropriate and relevant. - Objectives are defined that will lead to an improvement in processes, outcomes, and the development of a positive safety culture. - Assess how safety objectives are communicated throughout the organisation. - Safety objectives are being measured to monitor achievement through SPIs and SPTs. - Assess if the safety objectives have considered the State safety objectives in the SSP. 							
	Present	Suitable	Operating			Effective		
Safety objectives have been established that are consistent with the safety policy and there is a means to communicate them throughout the organisation.	Safety objectives are relevant to the organisation and its activities. Safety objectives are understandable and clearly visible. Safety objectives are aligned with the SSP.	Safety objectives are being regularly reviewed and are communicated throughout the organisation.			Achievement of the safety objectives is being monitored by senior management and action taken to ensure they are being met.			

3.2 SAFETY ACCOUNTABILITY AND RESPONSIBILITIES (Annex 19 element 1.2)

Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
Evaluation	3.2.1						
	3.2.2						
What to look for							
<ul style="list-style-type: none"> - Evidence that the Accountable Executive has the authority to provide sufficient resources for relevant safety improvements. - Evidence of decision making on risk acceptability. - Review SMS activities are being carried out in a timely manner and the SMS is sufficiently resourced. - Evidence of activities being stopped due to unacceptable level of safety risk. - Look for evidence that Accountable Executive actions are consistent with the active promotion of a positive safety culture in the organisation. 							
Guidance	Present	Suitable			Operating		Effective
	An Accountable Executive has been appointed with full responsibility and ultimate accountability for the SMS.	The Accountable Executive has control of resources.			The Accountable Executive ensures that the SMS is properly resourced, implemented, and maintained, and has the authority to stop the operation if there is an unacceptable level of safety risk. The Accountable Executive is fully aware of their SMS roles and responsibilities. The Accountable Executive is accessible to the staff in the organisation.		The Accountable Executive ensures that the performance of the SMS is being monitored, reviewed, and improved.

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	3.2.3	Safety accountabilities, authorities, and responsibilities are defined and documented throughout the organisation and staff understand their own responsibilities.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Question managers and staff regarding their roles and responsibilities. - Confirm senior managers are aware of the organisation's safety performance and its most significant risks. - Evidence of managers having safety related performance targets. - Look for active participation of the management team in the SMS. - Evidence of appropriate risk mitigation, action, and ownership. - The levels of management authorised to make decisions on risk acceptance are defined and applied. - Check for any conflicts of interest and that they have been identified and managed. 							
	Present	Suitable		Operating			Effective	
The safety accountability, authorities, and responsibilities are clearly defined and documented.	Individuals have access to their safety accountability, authorities, and responsibilities (for example, through job descriptions or organisational charts).		Everyone in the organisation is aware of and fulfil their safety responsibilities, authorities, and accountabilities and are encouraged to contribute to the SMS.			The Accountable Executive and the senior management team are aware of the risks faced by the organisation and SMS principles exist throughout the organisation so that safety is part of the everyday language.		

3.3 APPOINTMENT OF KEY PERSONNEL (Annex 19 element 1.3)

Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
Evaluation	3.3.1						
	3.3.2						
What to look for							
Guidance	<ul style="list-style-type: none"> - Review safety manager role including credibility and status. - Review the training that the safety manager has received. - Evidence of maintained competency. - Review how the safety manager gets access to internal and external safety information. - Review how the safety manager communicates and engages with operational staff and senior management. - Review the safety manager's workload/allocated time to fulfil role. - Check there are sufficient resources for SMS activities such as safety investigation, analysis, auditing, safety meeting attendance, and promotion. - Review of safety report action and closure timescales. - Interviews with Accountable Executive and safety manager. - Check for any conflicts of interest and that they have been identified and managed. 						
	Present	Suitable			Operating		Effective
	A safety manager who is responsible for the implementation and maintenance of the SMS has been appointed with a direct reporting line to the Accountable Executive.	The safety manager is competent. Sufficient time and resources are allocated to maintain the SMS.			The safety manager has implemented and is maintaining the SMS. The safety manager is in regular communication with the Accountable Executive and escalates safety issues when appropriate. The safety manager is accessible to staff in the organisation.		The safety manager is competent to manage the SMS and identifies improvements in a timely manner. There is a close working relationship with the Accountable Executive and the safety manager is considered a trusted advisor and given appropriate status in the organisation.

Evaluation	Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
	3.3.3	The organisation has established appropriate safety committee(s) that discuss and address safety risks and compliance issues and includes the Accountable Executive and the heads of functional areas.						
Guidance	What to look for							
	<ul style="list-style-type: none"> - Review safety committee and meeting structure and Terms of Reference for each committee/meeting. - Review meeting attendance levels. - Review meeting records and actions. - Check that outcomes are communicated to the rest of the organisation. - Evidence of safety objectives, safety performance, and compliance are being reviewed and discussed at meetings. - Participants challenge what is being presented when there is limited evidence. - Senior management are aware of the most significant risks faced by the organisation and the overall safety performance of the organisation. 							
	Present	Suitable		Operating			Effective	
The organisation has established safety committee(s).	<p>Safety committee(s)' structure and frequency supports the SMS functions across the organisation.</p> <p>The scope of the safety committee(s) includes safety risks and compliance issues.</p> <p>The attendance of the highest-level safety committee includes at least the Accountable Executive and the heads of functional areas.</p>		<p>There is evidence of meetings taking place detailing the attendance, discussions, and actions.</p> <p>The safety committee(s) monitor the effectiveness of the SMS and compliance monitoring function by reviewing there are sufficient resources.</p> <p>Actions are being monitored and appropriate safety objectives and SPIs have been established.</p>			<p>Safety committees include key stakeholders. The outcomes of the meetings are documented and communicated and any actions are agreed, taken, and followed up in a timely manner. The safety performance and safety objectives are reviewed and actioned as appropriate.</p>		

3.4 CO-ORDINATION OF EMERGENCY RESPONSE PLANNING (Annex 19 element 1.4)

Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments	
Evaluation	3.4.1	An appropriate emergency response plan (ERP) has been developed and distributed that defines the procedures, roles, responsibilities, and actions of the various organisations and key personnel.						
	3.4.2	The ERP is periodically tested for the adequacy of the plan and the results reviewed to improve its effectiveness.						
What to look for								
<ul style="list-style-type: none"> - Review emergency response plan. - Review how coordination with other organisations is planned. - Review how ERP is distributed and where copies are held. - Interview key personnel and check they have access to the ERP. - Check that different types of foreseeable emergencies have been considered. - Review when the plan was last reviewed and tested and actions taken. 								
Guidance	Present	Suitable			Operating		Effective	
	A coordinated ERP has been developed and defined.	Key personnel have easy access to the relevant parts of the ERP at all times. The ERP defines the procedures, roles, responsibilities, and actions of the various organisations and key personnel. The frequency and methods for testing the ERP are defined. The coordination with other organisations (including non-aviation organisations) is defined with appropriate means.			The ERP is reviewed and tested to make sure it remains up-to-date. There is evidence of coordination with other organisations as appropriate.		The results of the ERP review and testing are assessed and actioned to improve its effectiveness.	

3.5 SMS DOCUMENTATION (Annex 19 element 1.5)

Indicators of compliance and performance		P	S	O	E	How it is achieved	Comments
Evaluation	3.5.1						
	3.5.2						
What to look for							
Guidance	<ul style="list-style-type: none"> - Review the SMS documentation and amendment procedures. - Check for cross references to other documents and procedures. - Check availability of SMS documentation to all staff. - Check that staff know where to find safety-related documentation including procedures appropriate to their role. - Review the supporting SMS documentation (hazard logs, meeting minutes, safety performance reports, risk assessments, etc.). - Check how safety records are stored and version controlled. - Check appropriate staff are aware of the records control processes and procedures. 						
	Present	Suitable			Operating		Effective
	The SMS documentation includes the policies and processes that describe the organisation's SMS and processes. The SMS documentation defines the SMS outputs and which records of SMS activities will be stored. Records to be stored, storage period, and location are identified.	SMS documentation is readily available to all relevant personnel. SMS documentation is comprehensible. SMS documentation is consistent with other internal management systems and is representative of the actual processes in place. Data protection and confidentiality rules have been defined.			Changes to the SMS documentation are managed. Everyone is familiar with and follows the relevant parts of the SMS documentation. SMS activities are appropriately stored and found to be complete and consistent with data protection and confidentiality control rules.		SMS documentation is proactively reviewed for improvement. SMS records are routinely used as inputs for safety management-related tasks and continuous improvement of the SMS.

Resources – flighttestsafety.org

References/Recommended Practices

The References/Recommended Practices below are provided for general information/awareness and are not officially endorsed by the FTSC. If you would like to contribute to this section please contact us at ftsc@flighttestsafety.org

(References/Recommended Practices Documents are downloadable)

New items highlighted in yellow

Airport and Emergency Response Coordination for Flight Test Operations: Recommended Practices and Notification Checklist	Flight Test SMS Audit Protocols
Aircraft Difference Report Procedures	FT&SC Audit Procedures Manual



1. SAFETY POLICY AND OBJECTIVES

1.1 MANAGEMENT COMMITMENT AND RESPONSIBILITY

The organization shall define its Flight Test organizational safety policy which should be in accordance with recognized SMS framework and standards, and which shall be signed by the Accountable Executive of the organization. The safety policy shall reflect organizational commitments regarding safety, about the provision of the necessary human and financial resources for its implementation and be communicated, with visible endorsement, throughout the organization. The safety policy shall include the safety reporting procedures and affirm the tenants of just culture. The safety policy shall be periodically reviewed to ensure its remains relevant and appropriate to the organization.

EFFECTIVENESS is achieved when the organization has defined its safety policy that clearly states its intentions, safety objectives and philosophies and there is visible evidence of safety leadership and management ‘walking the talk’ and demonstrating by example.

Indicators of Conformance and Performance		P	S	O	E	How it is achieved	Verification
1.1.1	There is a Flight Test safety policy that stands-alone or supplements existing corporate safety policies and includes a mandate to participate in the safety management system.						
1.1.2	The Flight Test organization has based its safety management system on international and national accepted standards (i.e., ICAO Annex 19 and FAA AC 120-92 Series).						
1.1.3	Flight Test Leadership promotes and demonstrates their commitment to the safety policy through active and visible participation in the safety management system.						
1.1.4	The safety policy is communicated to all personnel with the intent that they are made aware of their individual contributions and obligations with regard to safety and the effectiveness of the SMS.						
1.1.5	The Flight Test safety policy highlights the uniqueness of flight test and the importance of employing standards and best practices while underscoring safety as an individual and organizational responsibility.						

Indicators of Conformance and Performance (continued)		P	S	O	E	How it is achieved	Verification
1.1.6	The safety policy actively encourages safety reporting and clearly indicates which types of behaviors are unacceptable and includes the circumstances under which disciplinary action would not apply.						
1.1.7	The safety policy states the organization's intentions, management principles and commitment to continuous improvement in safety performance.						
1.1.8	The Flight Test safety policy contains a review cycle to ensure currency, accuracy, and relevancy.						
1.1.9	There is commitment of the Flight Test Leadership to the development and ongoing improvement of the safety management system.						
1.1.10	The Flight Test SMS describes the importance of Just Culture and distinguishes between errors and intentional violations.						
1.1.11	There is a committee and process to review safety reports and stimulate corrective action.						
1.1.12	There is evidence of decision making, actions, and behaviors that reflect a positive safety culture.						

Best Practice Indicators		P	S	O	E	How it is achieved	Verification
1.1.13	Flight Test Leadership reinforces the concept that each individual is a critical enabler of an effective safety system.						
1.1.14	There is one corporate aviation safety policy used throughout the organization and it is implemented at all levels of the organization.						
1.1.15	The safety policy is clearly visible, or available, to all personnel and is included in key documentation and communication media.						
1.1.16	Flight Test's safety policy objectives complement the organization's goals and mission statements.						



Best Practice Indicators (continued)		P	S	O	E	How it is achieved	Verification
1.1.17	Flight Test personnel are educated, trained, and familiar with the SMS and embrace the policy and its message.						
1.1.18	Flight Test Leadership demonstrates their commitment to safety and professional excellence <u>by membership in professional affiliations, participation in training and safety conferences, and encouraging employees to do the same.</u>						
1.1.19	Flight Test Leadership has adopted an integrated safety planning process with published and measurable safety targets and objectives.						



You're welcome...

1.3 APPOINTMENT OF KEY PERSONNEL

The Flight Test organization shall identify a Flight Test SMS Manager to be the responsible individual and focal point for the SMS process execution including investigations, corrective actions, and follow-up.

EFFECTIVENESS is achieved when the Flight Test SMS is facilitated by the responsible individual and there is a safety structure of key personnel from the various operational areas of the organization. Flight Test Leaders are actively engaged in the safety management system and are committed to enhancing safety performance.

Indicators of Conformance and Performance		P	S	O	E	How it is achieved	Verification
1.3.1	A competent person with the requisite SMS and Flight Test knowledge, skills, and experience has been nominated to manage the operation of the Flight Test SMS.						
1.3.2	The person managing the operation of the Flight Test SMS fulfils the required job functions and responsibilities.						
1.3.3	There is a direct reporting line between the Flight Test SMS Manager and the Flight Test Executive.						
1.3.4	The organization prioritizes sufficient resources to manage the SMS including manpower for safety investigations, analysis, auditing, and promotion.						
1.3.5	Personnel in key safety roles are kept current through membership in professional affiliations and by attending educational courses, training, and safety conferences.						

1.4 COORDINATION OF EMERGENCY RESPONSE PLANNING

The Flight Test organization shall have a comprehensive emergency response plan that provides for rapid communication and response. The ERP will prompt other emergency response and services both within and outside the Flight Test organization as appropriate.

EFFECTIVENESS is achieved when the organization has an emergency response plan that is appropriate to the organization and is regularly tested and updated including coordination within the Flight Test organization and other parts of the company as appropriate.

Indicators of Conformance and Performance		P	S	O	E	How it is achieved	Verification
1.4.1	The Flight Test organization has adopted an Emergency Response Plan (ERP) that reflects the size, nature and complexity of the operation and defines the procedures,						

GAC Flight Test Safety Management System
Audit Protocol

7

	roles, responsibilities, and actions of the various organizations and key personnel.						
1.4.2	Key personnel have reliable notification of a mishap and easy access to the ERP at all times.						
1.4.3	The organization has a process to distribute the ERP procedures and to communicate the content to all personnel.						
1.4.4	The Flight Test ERP is periodically tested for the adequacy of the plan and the results reviewed to improve its effectiveness.						

Best Practice Indicators		P	S	O	E	How it is achieved	Verification
1.4.5	The Flight Test ERP is integrated with overall company response plans and accommodates the necessity to interface with local crash and rescue response entities.						
1.4.6	The organization has implemented Casualty Assistance Training and Critical Incident Stress Management for its personnel as appropriate.						



FLIGHT TEST SAFETY
COMMITTEE

ISBAO-based protocol

FT&SC Audit Forms 2014



FLIGHT TEST & SAFETY CONSULTANTS, LLC

Operator:

Address:

Date:

Flight Test & Safety Consultants, LLC
The Biltmore Hotel Executive Office Center
1200 Anastasia Ave, Suite 450, Coral Gables, FL 33134
Tel 917-543-7387



ISBAO-based protocol

FT&SC Audit Protocols

ref.	Requirement	Conform		N/A	References / Comments/ Evidence of Non-Conformities
		Y	N		

8.2 Detailed Audit Protocols

3 Safety Management System

3.2 Safety Management System Requirements

3.2.1 Safety Policy and Objectives

3.2.1a Management Commitment and Responsibility

SOUND: Is there a safety policy that:

- Reflects management's commitment to safety?
- Includes a clear statement about providing necessary resources?
- Includes safety reporting procedures?
- Is signed and dated by the Accountable Executive (AE)?
- Is communicated, with visible endorsement, throughout the organization?
- Indicates which types of behaviours that are unacceptable?
- Includes the conditions under which exemption from disciplinary action would be applicable?
- Is periodically reviewed to ensure it remains relevant and appropriate to the organization?

ISBAO-based protocol

FT&SC Audit Protocols

ref.	Requirement	Conform		N/A	References / Comments/ Evidence of Non-Conformities
		Y	N		
APPROPRIATE					
	• Is the safety policy relevant to the scope and complexity of the organization's operations?				
	• Is everyone aware of the safety policy?				
EFFECTIVE					
	• Is the safety policy reinforced by day-to-day decisions?				
	• Is everyone committed to enhancing safety performance?				
	• Is there visible evidence of management demonstrating by example?				
	• Have there been significant or frequent changes in ownership or senior management within the past three years?				Ref: GAIN
	• Have there been significant or frequent changes in the leadership of operational divisions within the company in the past three years?				Ref: GAIN
	• Have any managers of operational divisions resigned from the company because of disputes about safety matters, operating procedures or practices?				Ref: GAIN

ISBAO-based protocol

FT&SC Audit Protocols

ref.	Requirement	Conform		N/A	References / Comments/ Evidence of Non-Conformities
		Y	N		
	<ul style="list-style-type: none"> Has the company recently experienced financial instability, a merger, an acquisition or major reorganisation? 				Ref: GAIN
	<ul style="list-style-type: none"> Was explicit consideration given to safety matters during and following the period of instability, merger, acquisition or reorganisation? 				Ref: GAIN
	<ul style="list-style-type: none"> Are safety-related technological advances implemented before they are dictated by regulatory requirement, i.e., is the company proactive in using technology to meet safety objectives? 				Ref: GAIN
3.2.1.b	<p>Safety Accountabilities</p> <p>SOUND: Does the SMS documentation identify the AE and the safety responsibilities, accountabilities and authorities of all personnel, to include a definition of the levels of management with authority to make decisions regarding safety risk tolerability?</p>				
APPROPRIATE					
	<ul style="list-style-type: none"> Do the AE's terms of reference indicate his/her ultimate responsibility for the SMS? 				
	<ul style="list-style-type: none"> Are there clear lines of safety accountabilities throughout the organisation? 				
EFFECTIVE					
	<ul style="list-style-type: none"> Are the resources available to manage risks effectively? 				
	<ul style="list-style-type: none"> Does everyone know their role in the SMS and participate accordingly? 				

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FT&SC Audit Protocols

ref.	Requirement	Conform		N/A	References / Comments/ Evidence of Non-Conformities
		Y	N		
3.2.1c	Appointment of Key Safety Personnel				
	SOUND: Does the SMS documentation include an appointment of a safety manager?				
	Does the department/safety officer report directly to senior corporate management, to the CEO or the board of directors?				Ref: GAIN
	APPROPRIATE				
	Is the safety manager properly trained?				Ref: GAIN
Is there a formal management-selection process?				Ref: GAIN	

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ref.	Requirement	Conform		N/A	References / Comments/ Evidence of Non-Conformities
		Y	N		
	Are there well-defined management-selection criteria?				Ref: GAIN
	Is management selected from inside or outside the company?				Ref: GAIN
	Is operational background and experience a formal requirement in the selection of management personnel?				Ref: GAIN
	Are first-line operations managers selected from the most operationally qualified candidates?				Ref: GAIN
	Do new management personnel receive formal safety indoctrination or training?				Ref: GAIN
	Is there a well-defined career path for operations managers?				Ref: GAIN
	Is there a formal process for the annual evaluation of managers?				Ref: GAIN
	Is the implementation of safety programs a specific management objective considered in the evaluation?				Ref: GAIN
EFFECTIVE					
	Are the results of safety management activities formally recorded and analysed?				

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ref.	Requirement	Conform		N/A	References / Comments/ Evidence of Non-Conformities
		Y	N		
3.2.1d	Coordination of ERP				
	SOUND: Does the SMS documentation include an ERP that is properly coordinated with the emergency response plans of those organizations it must interface with during the provision of its services?				
	APPROPRIATE				
	Is there a procedure for periodic review of the ERP to ensure its continuing relevance and effectiveness?				
EFFECTIVE					
	Is the ERP regularly tested and updated including coordination with other organisations as appropriate?				

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ref.	Requirement	Conform		N/A	References / Comments/ Evidence of Non-Conformities
		Y	N		

3.2.1e	SMS Documentation				
	SOUND: Does the SMS documentation include: • A plan that defines the organization's approach to meet the safety objectives;				
	Are Company safety standards set primarily by the company or by the appropriate regulatory authority?				Ref: GAIN
	Does the Company set higher safety standards than those required by the regulatory authority?				
	Do the Company's safety standards meet or exceed U.S. Federal Aviation Regulations (FARs)/European Joint Aviation Requirements (JARs) criteria?				Ref: GAIN
	Does the Company have a constructive, co-operative relationship with the regulatory authority?				Ref: GAIN
	Has the Company been subject to recent safety-enforcement action by the regulatory authority?				Ref: GAIN
	Does the regulatory authority refuse to recognise the licenses issued by some other countries?				Ref: GAIN
	Does the Company evaluate the licensing requirements of other countries when deciding whether to hire personnel who hold licenses issued by those countries?				Ref: GAIN
	Does the Company consider the differing experience levels and other licensing standards of other countries when reviewing applications for employment?				Ref: GAIN
Does the regulatory authority routinely evaluate the Company's compliance with required safety standards?				Ref: GAIN	



What then needs to be in the Safety Policy?

- ▶ To be “conforming?”
- ▶ To be readable?
- ▶ To be understandable?
- ▶ To be believable?



Safety Policy – ICAO

Management commitment and responsibility, including the obligation to do the following:

- Define a safety policy and safety objectives as a basis for performance measurement;
- Implement safety reporting procedures, applying just culture principles.
- Safety accountabilities, including the obligation to document and communicate safety responsibilities, accountabilities and authorities;
- Appointment of key safety personnel, including the appointment of a safety manager;
- Coordination of emergency response planning; and
- SMS documentation, including the development of an SMS manual and processes.



Safety Policy Elements [NAS9927]

- ▶ “Set objectives, assign responsibilities, and set standards.”
- ▶ “...where management conveys commitment to the safety performance of the organization to its employees.”
- ▶ If positive aspects of culture are to emerge, the organization’s management must set up the policies and processes that create a working environment that fosters routine safety behaviors. That is the purpose of the SMS processes.”



Organizational Characteristics

- ▶ Open reporting – disclosure of error without reprisal
- ▶ Just Culture – distinguish good vs undesirable behaviors
- ▶ Personnel involvement – line and management personnel
- ▶ Use of information – actionable intelligence



Organizational Characteristics Cont.

- ▶ Commitment to Risk Reduction – hazard ID and mitigations
- ▶ Vigilance – assess risk controls & ID new hazards
- ▶ Flexibility – make adjustments and apply resources
- ▶ Learning – learn from failures and make corrections



Safety policy

- ▶ Should have these elements:
 - Accountable Executive commitment to safety
 - Establishing of safety objectives
 - Commitment to provide necessary resources
 - Confidential reporting system without fear of reprisal
 - Illegal or intentional violations subject to disciplinary actions
 - Signed by Accountable Executive(CEO)
 - Published widely



Back to your groups...

Capture elements of safety policy for your organization



Former NTSB Chairman Robert Sumwalt:

Having top-level management support and commitment is probably the single most important attribute of a positive safety culture.

Someone once asked me what to do if this support wasn't present. My response: "Find another job."

Without management support, the prospects of a thriving safety culture are slim to nil.



Separate / Tailored SMS Policy for Flight Test?

Develop safety policy statements for a flight test organization



Safety Objectives – General

- ▶ Safety Objectives are derived from Safety Goals
- ▶ Safety **goals** are general and enduring
 - High level
 - Updated infrequently
 - Touch every level of the safety program
- ▶ Safety **Objectives** are specific and measurable
 - Targeted to each safety goal
 - Are clear, specific, and in sentence form
 - Reviewed and updated regularly
 - Basis for developing Key Performance Indicators (KPIs) or Safety Performance Indicators (SPIs)



Safety Objectives – Group Exercise

Develop safety objectives for a flight test organization



Safety Policy, Objectives and Culture Panel

- ▶ Rod Huete – President, Flight Test & Safety Consultants, LLC
- ▶ Walter Kraujalis – President, AeronomX, LLC
- ▶ Sonnie Bates – CEO Wyvern, Ltd



Back to our scenario...

A test crew was performing up & away HQ testing and experienced a flap Nz exceedance. It's only 0.2G over the published test card limitation so they decide to continue. You, as the test safety manager, find out a week later overhearing a water-cooler conversation about particularly forceful pilot personalities.

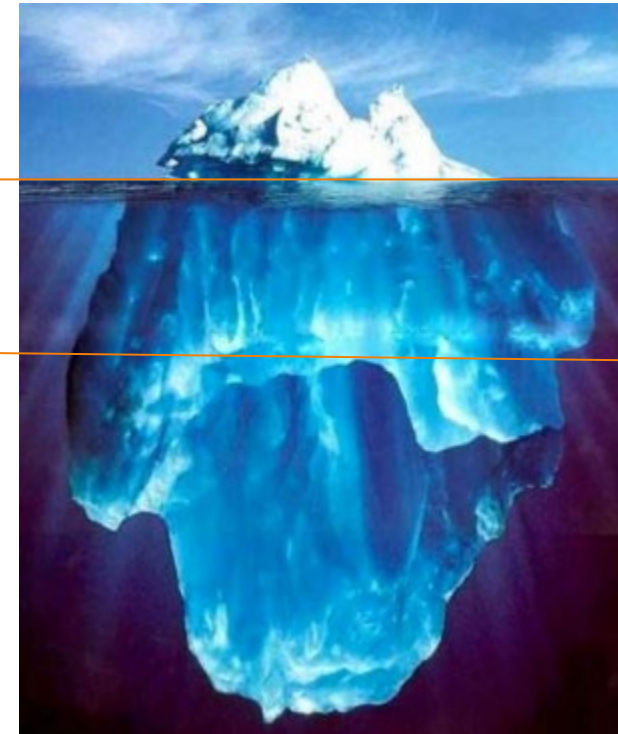
What might this say about your organizational culture?



Heinrich Triangle



The Heinrich 300-29-1 Model



Safety Culture Indicators

GENERATIVE

Chronic unease
Safety seen as a profit centre
New ideas are welcomed

PROACTIVE

Resources are available to fix things before an accident
Management is open but still obsessed with statistics
Procedures are “owned” by the workforce

CALCULATIVE

We cracked it!
Lots and lots of audits
EHS advisers chasing statistics

REACTIVE

We are serious, but why don't they do what they're told?
Endless discussions to re-classify accidents
Safety is high on the agenda after an accident

PATHOLOGICAL

The lawyers said it was OK
Of course we have accidents, it's a dangerous business
Sack the idiot who had the accident

Key Takeaways...

- ▶ SMS is something you DO, not something you HAVE
- ▶ Culture is King
- ▶ Leaders must walk the talk
- ▶ What gets measured, gets improved
- ▶ Safety is a team sport – YOU can make the difference

Handout Review



Flight Test Safety Workshop

Thank you for your attendance and engagement!

Find resources here: flighttestsafety.org

