

A Foundational Framework for Safety



**VERTICAL AVIATION
INTERNATIONAL**

Guidebook

**Pilots • Mechanics
Owners • Operators
Flight Schools**

© 2024 Vertical Aviation International. All rights reserved.

Vertical Aviation International (VAI)
1920 Ballenger Avenue
Alexandria, VA 22314-2898
1+ 703 683 4646

About This Guide



This Framework for Safety is a safety engagement guide to assist operators, owners, students, pilots, and mechanics in all sizes of operations to better manage risk in real time and create solution space through the engagement with necessary safety defenses. These methods work not only to minimize the consequences of human errors and significantly reduce the number of fatal/nonfatal accidents, but also to minimize the severity and financial impact of injuries and unwanted events.

TABLE OF CONTENTS

ACRONYMS.....	4
DEFINITIONS.....	5
BACKGROUND.....	7
INTRODUCTION.....	7
HOW TO USE THIS GUIDEBOOK.....	9
Tier One (Creating Foundation).....	9
Tier Two (Solidifying).....	9
Tier Three (Validating).....	9
Tier Four (Sustained and Growing).....	9
STAKEHOLDERS.....	10
Tier One.....	10
Tier Two.....	10
Tier Three.....	10
Tier Four.....	11
SMS TIER ONE FRAMEWORK.....	12
TIER ONE Competency No. 1 PRACTICING SELF-CARE.....	13
TIER ONE Competency No. 2 HAVING A SAFETY MINDSET.....	16
TIER ONE Competency No. 3 SETTING PERSONAL LIMITS.....	18
TIER ONE Competency No. 4 PRIORITIZING YOUR ACTIVITIES.....	20
TIER ONE Competency No. 5 PREPARING FOR AN EMERGENCY.....	22
TIER ONE Competency No. 6 SEEKING FEEDBACK.....	24
SMS TIER TWO FRAMEWORK.....	26
TIER TWO Competency No. 1 DEFINING SAFETY RESPONSIBILITIES AND ACCOUNTABILITIES.....	27
TIER TWO Competency No. 2 IDENTIFYING, UNDERSTANDING, AND CONTROLLING RISKS.....	31
TIER TWO Competency No. 3 USING TRAINING TO MAINTAIN AND IMPROVE PROFICIENCY.....	39
TIER TWO Competency No. 4 INCORPORATING JUST CULTURE.....	40
TIER TWO Competency No. 5 UNDERSTANDING SYSTEM OPERATIONS.....	44
TIER TWO Competency No. 6 PRACTICING EFFECTIVE COMMUNICATION.....	46
TIER TWO Competency No. 7 HAVING AN EMERGENCY RESPONSE PLAN.....	49
SMS TIER THREE FRAMEWORK.....	51
TIER THREE Competency No. 1 MEASURING PERFORMANCE.....	52
TIER THREE Competency No. 2 MATURING THE SAFETY CULTURE.....	55

TIER THREE Competency No. 3 UNDERSTANDING CHANGE MANAGEMENT AND CONTINUOUS IMPROVEMENT	57
TIER THREE Competency No. 4 MAINTAINING A FORMAL TRAINING PROGRAM.....	59
TIER THREE Competency No. 5 IDENTIFYING DESIGNATED SAFETY PERSONNEL	61
TIER THREE Competency No. 6 IMPLEMENTING A SAFETY MANAGEMENT SYSTEM (SMS).....	62
SMS TIER FOUR FRAMEWORK	66
TIER FOUR Competency No. 1 HAVING AN ENGAGED SMS	67
TIER FOUR Competency No. 2 PARTICIPATING IN EXTERNAL ASSESSMENTS	70
TIER FOUR Competency No. 3 ESTABLISHING SAFETY MASTERY	72
TIER FOUR Competency No. 4 ACHIEVING MENTORSHIP STATUS	73
APPENDIXES.....	74
Appendix A: Tier One Safety Framework – Quick-Start Template	75
Appendix B: Tier One Safety Framework – Competency Evaluation Checklist	77
Appendix C: Tier Two Safety Framework – Competency Evaluation Checklist	80
Appendix D: Tier Three Safety Framework – Competency Evaluation Checklist	83
Appendix E: Tier Four Safety Framework – Competency Evaluation Checklist.....	86

ACRONYMS

Acronym	Definition
ALARP	As Low as Reasonably Practicable
ALoS	Acceptable Level of Safety
CAP	Corrective Action Plan
CAPA	Corrective Action/Preventative Action
CRM	Crew Resource Management
DOE	Department of Energy
ERP	Emergency Response Plan
FRAT	Flight Risk Assessment Tool
FTD	Flight Training Device
GRAT	Ground Risk Assessment Tool
HRO	High Reliability Organizations
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rules
JSA	Job Safety Analysis
KPI	Key Performance Indicator
LMS	Learning Management System
OEM	Original Equipment Manufacturer
PAIP	Post-Accident/Incident Plan
RCA	Root Cause Analysis
SMS	Safety Management System
SPI	Safety Performance Indicator
VFR	Visual Flight Rules

DEFINITIONS

Term	Definition
Collective Mindfulness	The collective capability to discern discriminatory detail about emerging issues and to act swiftly in response to these details.
Competency	A collection of related abilities, commitments, knowledge, and skills that enable a person (or an organization) to act effectively in a job or situation.
Consequence	The result, outcome, or loss of an event caused by a hazard(s).
Critical Task	A task that could result in injury, interruption of flight, or damage to the aircraft/environment.
Currency	Meeting the requirements to act in a specific role within a certain time period.
Error	An action or inaction that leads to a deviation from personal or organizational intentions and expectations.
Hazard	Any existing or potential condition that might cause injury, damage, or an undesirable event.
Lagging Indicator	An event that has already happened (e.g., recordable injury).
Latent Failure	Refers to less-apparent gaps in the design of organizational systems, the environment, or equipment that are often hidden until they contribute to the occurrence of errors or allow errors to go unrecognized until they cause damage or harm.
Leading Indicator	A proactive action such as employee communications, doing a walk-around, or debriefing a good flight.
Mitigation	The process of reducing the magnitude of risk to an acceptable level.
Proficiency	Being prepared to handle any situation with which you might reasonably be presented.
Risk	The predicted probability (likelihood) AND severity of the consequences or outcomes of a hazard.
Risk Profile	The elements of risk that are inherent to the nature of the operations. The risks stemming from the activities carried out.
Safety Assurance	The processes within the SMS that function systematically to ensure the performance and effectiveness of safety risk controls and that the organization meets or exceeds its safety objectives through the collection, analysis, and assessment of information.
Safety Management System (SMS)	The formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of safety risk controls. It includes systematic procedures, practices, and policies for the management of safety risk.
Safety Performance	The demonstration of how effectively an individual or operator can mitigate its risks.

Term	Definition
Safety Policy	The certificate holder's documented commitment to safety, which defines its safety objectives and the accountabilities and responsibilities of its employees in regard to safety.
Safety Promotion	A combination of training and communication of safety information to support the implementation and operation of an SMS in an organization.
Safety Risk Management	A process within the SMS composed of describing the system, identifying the hazards, and analyzing, assessing, and effectively controlling risk.
System	An integrated network of people and other resources performing activities that accomplish some mission or goal in a prescribed environment.
Threat	A situation or event that has the potential to impact negatively on the safety of an activity, or any influence that promotes opportunity for individual error(s).

BACKGROUND

This foundational framework for safety was developed to provide guidance to the smallest of operators—down to one. One pilot, one mechanic who needs a framework; not a fully implemented safety management system (SMS) to get home safe every day. In addition, this foundational framework is designed to prepare organizations through a stepwise process to develop a unique SMS specific to their organization. This framework is different from other guidance documents in that it promotes a safety mindset to help build a safety culture for organizations of one person to 5,000 employees.

INTRODUCTION

Safety starts with you. Each action we take is either building a safety culture or not supporting a safety culture. We all can take small actions to help reduce the number of fatal helicopter crashes as well as the consequences and financial impact of unwanted events.

Vertical Aviation International (VAI) developed this Foundational Framework for Safety to help all types and sizes of operations. The focus is for our community to get engaged in safety! This framework is a simple approach to provide minimum structure for your safety process, whether it's just you, or a large company with multiple aircraft and locations.

The Framework for Safety is not intended to compete with or replace any industry accreditation program that you/your organization may already participate in; rather, it is intended to be a foundational guide for better engaging in safety to manage risk and reduce consequences more effectively. This is not a compliance “check the box” type of engagement process. This framework is easily scalable to every size operator, and the framework can be applied to work with other accreditation programs.

The VAI Framework for Safety fills the gaps and focuses especially on those operators and individuals who may not have the necessary resources or risk management skill sets for proper implementation of an SMS.

The framework is built with the understanding that for any safety program to actually work, a culture of professionalism and accountability must exist both in individuals and within organizational leadership. Effective communication and managing human errors in real time are integral components of a professional organization. Risk management programs of any kind, audits, and formal safety management systems all must be built on a foundation of integrity.

Incorporating safety into your operation is a cost saver, not a cost center! Striking a balance between cost and safe performance is a critical concept the vertical flight industry needs to embrace and shift the mindset. Real long-term value is gained with managing risk more effectively even with the potential impact of additional short-term costs.

Key Components to the Framework for Safety:

- Identify minimum competencies for safe operation
- Identify and provide access to available industry risk-management resources
- Substantial focus on training and help identifying resources
- Provide accessible/affordable tools
- Provide a solution that is current and easy to use
- Provide a tiered approach to risk-management implementation
- Provide engagement/support
- Identify safety elements and resources
- Provide checklists to identify gaps
- Create mentoring roles for industry.

HOW TO USE THIS GUIDEBOOK

This guidebook can be used to help establish your own framework for safety. It is intended to serve all operators, including single pilots and mechanics, small companies, and all types of functions. This guidebook is also intended to be used as an introductory tool to safety and risk management that can be scaled to organizations as they grow and their safety culture matures.

Safety management systems (SMSs) have a lot of moving parts that can be daunting for small operators or even personal/private owners. The goal is to get the “small stuff” right. This guidebook divides the levels of safety engagement into four tiers. Each tier builds upon the foundation of the previous tier(s).

Each tier contains several competencies that your organization should be able to demonstrate to help you enhance the safety culture within your organization. The term *competency* refers to the ability to use a set of relevant knowledge, skills, and abilities (KSAs) to successfully perform functions or tasks in a defined work setting. Competencies focus on how results are achieved rather than on merely the end result. In this manner, they bridge the gap between performance management and personal development and are an integral component of proficiency planning.

Tier One (Creating Foundation)

This tier is designed to build a foundation that enables safety engagement to grow into all aspects of your operation. This is the simplest of the tiers and promotes safety engagement. Tier One is for those operators, students, pilots, mechanics, and private owners who may not have a formal safety program such as an SMS.

Tier Two (Solidifying)

This tier is about how to continue building a solid safety framework to allow yourself and other employees to further engage in safety all the time and to encourage safety culture development and maturity.

Tier Three (Validating)

At this tier, you will further expand your safety framework and begin to formalize an SMS for your operation. This tier is more advanced and considers dedicated resources for your organization’s risk-management process.

Tier Four (Sustained and Growing)

As expected, safety never takes a break or stops. This is true for even the most mature operations. This last tier is designed not only to help you mature your safety culture, but also to encourage you to enhance safety in our industry by taking a proactive role through mentoring.

STAKEHOLDERS

The following section outlines the stakeholders for each tier. We understand that larger operations may have a more mature safety culture because they have a formal written SMS and staff dedicated to safety operations. Nonetheless, we recommend that everyone review the elements of each tier before progressing to the next tier because every operator will benefit from learning about the foundational safety messages that ultimately create a safety culture within an organization. In addition, learning how to minimize human performance errors and system latent conditions that tend to creep into every organization can help to ensure a just culture is in place.

Embracing a just culture helps to ensure employee event reporting without fear of reprisal. Organizational knowledge of what is happening in the field allows a reevaluation of safety defenses that may need to be improved. These proactive actions are happening BEFORE the unwanted event. The organizational shift to a proactive environment rather than a reactive environment saves lives and money. A strong organization that has a just culture to ensure employee reporting is embraced is truly a win-win for your organization and the vertical aviation industry.

Tier One

Tier One users may include:

- Students who are enrolled in flight/maintenance schools
- Individual pilots
- Individual mechanics
- Personal/Private owners
- Non-complex type operators
- Anyone who is not familiar with risk-management principles.

Tier Two

Tier Two users may include:

- Students who are enrolled in flight/maintenance schools
- Pilots
- Mechanics
- Operators who rent aircraft by the hour
- Operators who fly seasonally or intermittently
- Small operators who may not have a formal safety management system (SMS).

Tier Three

Tier Three users may include:

- Operators who already participate in a formal auditing program
- Operators with a formal SMS program
- Operators who have a functional risk-management system and a safety assurance program.

Tier Four

Tier Four users may include:

- Operators who have a mature SMS and are continually looking to improve
- Subject matter experts who are willing to share their expertise with other operators in a mentoring capacity
- Operators who have an ability to give back and mentor smaller operators.

SMS TIER ONE FRAMEWORK

The Tier One framework is designed for those operators or individuals who do not have a formal process for managing risks. Tier One will help establish a foundational safety framework for you to build on or scale up as your organization grows. This framework is based on safety awareness and engagement, with simple practices that are not overwhelming or burdensome to help you develop habits that create a positive impact. The goal is to get the “small stuff” right. This applies to anyone who operates, utilizes, or maintains an aircraft.

The objective of Tier One is to provide a minimum framework of competencies that must be practiced every day to handle the numerous and dynamic safety challenges we face in all types of vertical flight operations.

Tier One includes six (6) competencies that comprise the minimum standard of engagement that either you as an individual or your organization must do/demonstrate to achieve Tier One VAI Framework for Safety recognition.

Tier One Competencies
1. Practicing Self-Care
2. Having a Safety Mindset
3. Setting Personal Limits
4. Prioritizing Your Activities
5. Preparing for an Emergency
6. Seeking Feedback

TIER ONE | Competency No. 1

PRACTICING SELF-CARE

GOAL

Ensuring that you are physically and mentally prepared to perform your flight and/or ground tasks.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Understand the impact that a lack of personal care can have on your ability to effectively conduct your aviation activities.

TIPS

- If you are yawning, your body needs some rest. Take a short nap.
- If you see a coworker yawning, encourage them to get some rest.
- Don't wait until you are thirsty to drink water—thirst is an indication of dehydration. Listen to what your body is telling you.

Taking care of you. This is an area of responsibility that is often overlooked. However, it can have serious implications with performance if neglected. The following self-care elements contribute to the success or failure of your daily tasks or operations. Consider addressing these factors in your personal or organizational safety framework.

SLEEP

1. How much sleep do you get?

Managing the amount of rest you receive is an important and necessary part of our lives. Sleep is when your body makes all its necessary repairs. We are all likely sleep-deprived. Drinking coffee and energy drinks is no substitute for the lack of sleep. If you are sleepy, the only cure is to get more sleep. According to the National Institutes of Health: fatigue-related problems are believed to cost the United States an estimated \$18 billion/year in lost productivity and accidents. More than 1,500 fatalities, 100,000 crashes, and 76,000 injuries annually are attributed to fatigue-related drowsiness on the highway.

Prepare for work by getting enough sleep the night before. It is a simple task but not always feasible. Sleep can be interrupted if you have a newborn or a sick child or are a caregiver for a family member or are under a lot of stress. So, what do you do then? Learn how to take a nap. A 20-minute nap could buy you 4 hours of alertness. Progressive companies like Google and Apple have sleep pods at their workplaces. It is not the norm to pay people to sleep, but if you can incorporate a 20-minute nap into a break and the benefits of employees' heightened awareness helps your organization save money by the sheer reduction in errors, everyone wins.

A unique characteristic of fatigue that can differentiate it from most other organizational hazards is that its exposure is not limited to just the workplace. Fatigue can also affect activities and choices made outside of work, sometimes described as a "whole of life issue." As a result, the actual management of fatigue must be a shared responsibility between employers AND employees.

DIET, HYDRATION, EXERCISE

2. Maintain a healthy lifestyle.

Ensure proper hydration, diet, and exercise—strive for balance.

- a. Proper hydration is just as important to your decision-making skills as a good night's sleep. Be sure that you are drinking enough water. You can check your hydration each time you have to urinate. If your urine is dark yellow, you are dehydrated. Your urine should be close to colorless, like the water in the toilet. Drinking coffee and energy drinks can actually dehydrate you. The rule of thumb to determine how much water you need to stay hydrated is to divide your weight by 2 – that's the number of ounces of water you should drink each day. For example, if you weigh 100 lb. you should drink at least 50 oz. of water each day. For every cup of coffee or 8 oz. energy drink you consume, you should drink 8 oz. of water in addition to the amount needed to stay hydrated.
- b. We all know that our ability to perform well depends on a balanced diet. This can be challenging for everyone due to schedules and convenience. Be mindful of your diet. It is fuel for your body.
- c. A routine of exercise can help us handle the physical demands of aviation. Whether flying in the aircraft for extended periods or being in an uncomfortable position while working on the aircraft will have a physical impact on our bodies. Taking the time for some amount of exercise or stretching is not only good for your body, but also a great stress reliever. If you are feeling stressed, go for a 30-minute walk.
- d. Recognize the potency of over-the-counter (OTC) medications. Pilots and mechanics frequently underestimate the effects and the impairment caused by these often-sedating drugs. If you are using OTC medications for a minor health concern such as a cold, headache, or hay fever, consider putting off the flight for another time. If you must take the flight, ensure that the OTC medication will not affect your reflexes or in any other way compromise your safety.

STRESS

3. Mental health.

- a. An individual's mental well-being is often tied directly to the amount and quality of sleep. When we are stressed, the best thing to do is get a big glass of water and go to sleep early. Choosing substances to ease the pain does not work in the long run. However, going for a long run or a long walk can be very healing. Recognize that we are all equally human, if you need help getting through a life stressor, ask for help. You are not weak in asking for help; you are courageous!
- b. There is also power in laughter. If you are stressed or sad, watch a funny movie, read a humorous book; do something that will get you to laugh out loud. Our bodies cannot experience pain and joy simultaneously. Choose joy!

BE MINDFUL

4. Mindfulness.

This may sound cliché, but it is somewhat challenging: our brains are either dwelling over the past or thinking about the future. We do not spend much time in the NOW. Being mindful in the moment is an individual practice and method of awareness.

Example of practicing mindfulness: When you are in the shower, are you really in the shower or is your mind thinking about traffic for your commute or what you must do today?

When you're mentally in the shower, you feel the water, the temperature, the smell of the soap or shampoo—you are not at your 9 am meeting or driving there; you are in the shower. This is a technique that takes practice, but you can easily become mindful: be there, feel the water and think of nothing else but being in the shower. It may only last a minute, but in that minute you were mindful.

Make it a practice to take a closer look at your work procedures:

- Are you really in the training class, or did you check out?
- Are you really focusing on installing that part, or are you thinking about what you must do after work or worrying about a conversation you had with a family member?

Check yourself when you are involved in a critical task like replacing an important part on an aircraft or completing a walk-around or a preflight checklist. If you do not remember doing _____ (fill in the blank) [your walk-around, installing a part, completing a preflight checklist] do it again. If you cannot remember doing the task, you were on autopilot: you were just checking the box. Everybody needs you to be engaged and in the moment. Your decisions and your actions during critical tasks affect many more individuals than just you. Take your time and be mindful during all critical tasks. Raise your awareness!

TIER ONE | Competency No. 2 HAVING A SAFETY MINDSET

GOAL

To incorporate and commit to a safety mindset in all facets of your aviation activities.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Recognize opportunities to incorporate safety into all aspects of the operation and the importance of having a positive safety attitude.

TIPS

- Incorporating a safety culture temperament into your individual habits is a great place to start. “I am going home uninjured today” is a simple, yet effective safety policy statement. All your actions, reactions, planning, etc., should be accomplished with that goal each day.
- Create a checklist for tasks so that you do not miss any important steps.

We often hear someone say the phrase or are even told to “Be Safe” when performing some type of risky activity. In aviation, this is especially prevalent because of the constant motivation to avoid accidents. There are numerous hazards that must be managed (controlled or mitigated) to produce a positive outcome. It's the awareness and active defenses that you have in place that will help you to minimize all risks. Safety is not defined by minimizing unwanted events, rather it is defined by the number of safety defenses that are in place during each task.

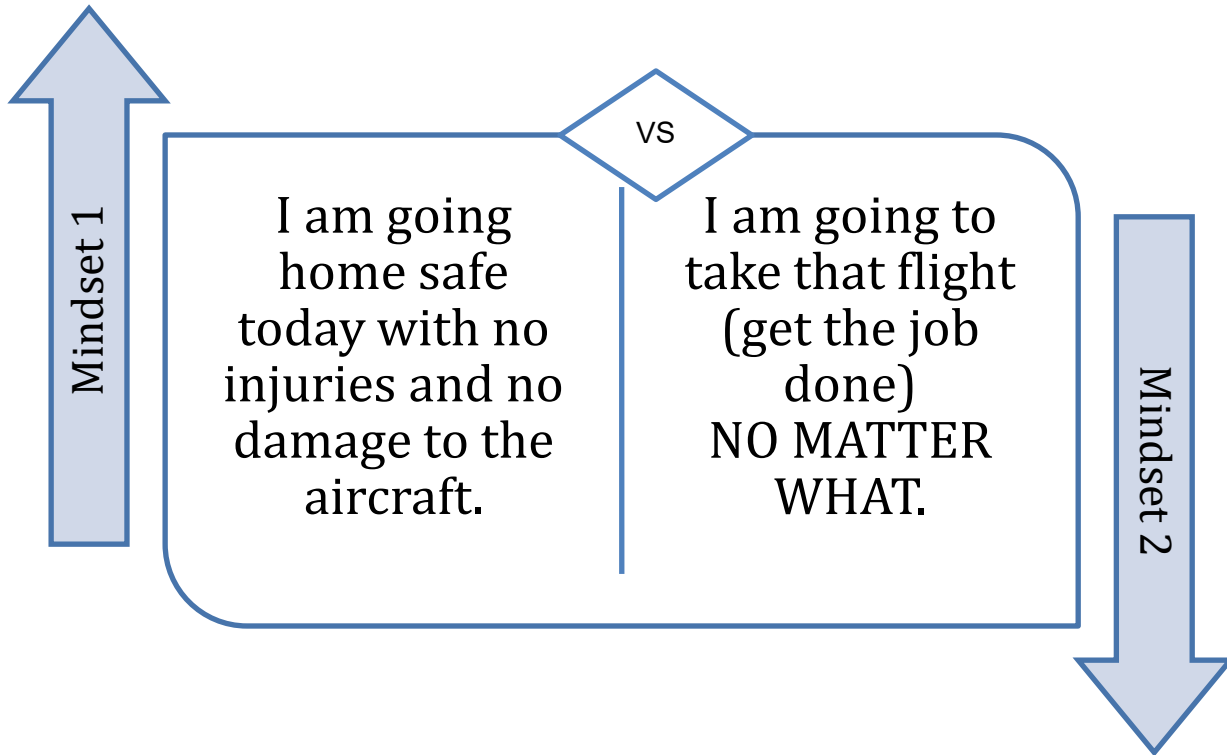
In order to establish a solid safety mindset for your organization you must define what “safe” is as well as the genuine actions to reduce risk. Does it simply mean following the OEM checklists instead of trying to do it from memory? Just because you arrive somewhere uninjured, or you complete a task as planned doesn't mean you necessarily did the task safely. Did you take a shortcut or did you rush yourself unnecessarily? Did you have all the proper tools and materials available? Did something change unexpectedly? A clear definition of what is acceptable risk and what is not acceptable is the starting point for a personal as well as an organizational risk-management system.

By creating or setting a personal safety strategy (e.g., a simple safety statement such as “I am going home safe today”), you can maintain a safety mindset through challenging conditions and create accountability. Avoid situations that may cause you to bend your personal standards or accommodate your immediate need(s). Don't always take the path of least resistance because it is easier; that mindset opens the door to more risk. Do the right thing even if it takes a few more minutes. Shortcuts lead to unnecessary risk exposure.

Example: Think about getting to a particular destination on time. If you are driving, biking, or walking, your travel time is going to differ, so you must plan ahead. If you're driving, you may want to map out your route to see the predicted travel time to get to your destination. If you're familiar with the area, you may know general traffic patterns and whether you need to allow extra time to meet your goal. You may want to download a traffic app ahead of time to help with alternate routes in case of traffic delays that would impede you meeting your goal. The point of this example is that a lot of things need to happen for you to reach your goal of getting to your destination on time. Some components you control and other dynamics you have absolutely no

control over at all. But every decision you make, every planning activity that you engage in supports your goal of “getting to your destination on time.”

Look at the difference in these two mindsets:



Your entire safety mindset (strategy/policy) can be as simple as making it home with no injuries and no damage to the aircraft. All your planning and decisions will automatically support that mindset and, without even realizing it, you are managing your risks in real time. And don't be afraid to adjust your routine to offset any negative influences as well as communicate to others any concerns you may have.

Do you see how mindset #2 may lead you to more risky behavior, pushing weather, taking shortcuts, etc.? Start each day with a safety goal or safety mindset. You can easily check yourself to see if your activities are supporting that mindset and whether the mindset incorporates a safety statement. This is the beginning of how to get safety integrated into your overall culture.

TIER ONE | Competency No. 3

SETTING PERSONAL LIMITS

GOAL

Set limits that will define your personal safety.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs):

Identify and set boundaries for yourself when flying or maintaining aircraft. Engage with a safety mindset that these set boundaries will never be crossed or subjectively changed.

TIPS

- If you are not a frequent flyer, do not go out when there are marginal VFR conditions in your area. Wait for a better day.
- If the aircraft is different from the aircraft normally flown or maintained, take time to review the differences such as avionics, location of switches, circuit breakers, etc. Understand the placement and use of any operation-specific equipment such as a hoist, etc.
- ALWAYS use recommended safety equipment for both flight and maintenance such as helmets for flight and fall protection and ladders for maintenance.
- ALWAYS complete maintenance tasks with minimal interruption and correct tools and equipment to prevent errors.

If we find ourselves uncomfortable in situations, it is most likely the result of reaching a potential limitation of our capabilities. You should be aware of those limits ahead of any activity and have a plan in place to help you remain safe.

The Department of Energy (DOE) developed a process called human performance improvement (HPI). The idea is to try to stop errors in real time to minimize the consequences of potential injuries or damage. One small proactive control can have enormous results. Here is one method that you can incorporate into your system IMMEDIATELY to trap errors in real time, even if you are a sole pilot: for each critical task, complete an HPI checklist that includes a Self-Check, Peer Check, Trust but Verify, and a Have a Questioning Attitude step (see box).

Human Performance Improvement Checklist

Self-Check

Did I do it? Did I do it right? I don't remember doing the walk-around.

Peer Check

I am not sure about this, so I am going to "phone a friend," ask a coworker, etc.

Trust but Verify

I think I know how to do this, but I am going to check the reference (manual). I heard what my coworker said, but I am going to verify that it is true.

Have a Questioning Attitude

I wonder why this is stored here? I wonder why we do it this way? Did I do my walk-around? Did I follow the checklist? Never stop asking questions! Asking questions helps to stop errors in real time.

Understanding the limits of knowledge and proficiency and performing a self-check, peer check, trust but verify, and having a questioning attitude can help to stop errors and minimize risk in real time.

Setting personal limits will help to prevent you from going beyond your capabilities. You might consider a more restrictive ceiling and/or visibility parameter(s) for your flights or limit the quantity of hours consecutively worked while repairing an aircraft. Write these down and commit to using your predefined limits as hard stops to improve your margins for safety.

The concept of proficiency is also an important consideration for setting limits, especially if you have not flown recently or previously performed a particular repair project. Meeting currency requirements does not necessarily mean that you are proficient. By setting limits for yourself, you create additional safety margins that help reduce the likelihood of negative outcomes from manifesting. You are essentially creating (safety) success by not allowing yourself to drift from your known comfort zone. Document a simple personal policy that defines your own limits. Refer to the Quick Start Template at the end of Tier One to get started.

TIER ONE | Competency No. 4 PRIORITIZING YOUR ACTIVITIES

GOAL

To be able to identify, evaluate, plan, and prioritize critical tasks for the day.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs):

Recognize and communicate critical tasks to ensure appropriate safety defenses are put in place. Identify priorities within your activities: what needs to get done first? Identify and define tasks that are critical vs. tasks that involve little or no risk.

TIPS

- If you are performing a task for the first time, allow time for a peer review or a reference check.
- What keeps you up at night? Maybe you should consider making that a priority for the next day.
- If you are flying in the same aircraft model, but with a slightly different configuration, give yourself some extra time to better familiarize yourself.

Critical tasks are incorporated into our everyday lives. Driving your car to work or to the airport is one example of a critical task. In aviation, however, nearly all tasks that involve defying gravity are critical in nature. If something fails, gravity wins. To effectively manage these inherent risks, we need to “slow it down” and know the order in which our actions must occur. Focus on what is important to the current operation or task. Prioritize your tasks to help minimize risks. It may be as simple as knowing the weather or as complex as understanding the capabilities of the aircraft to accomplish a specific unique task. It is critical that you assess the situation and understand the various priorities and their impact.

Not all risks are high risks. The marginal weather that is forecast for VFR within an hour is potentially a lower risk than high wind conditions in the area of obstacles during a longline operation. To determine what is acceptable it is important to honestly assess the situation and conditions and self-disclose any operational vulnerabilities in both equipment and skills. Is the aircraft capable? Am I proficient? Are the conditions acceptable?

Many models are available to help you evaluate the critical tasks for the day. Understanding what is critical helps determine priority as well.

A critical step/task is one that if it goes wrong could result in:

- Injury
- Interruption of flight
- Damage to the aircraft/environment.

EXAMPLES OF A CRITICAL STEP/TASK

- **Moving an aircraft out of the hangar.** Risk of injury; if the blade catches an edge, potential for damage to the aircraft and interruption of flight.
- **Working at heights.** While performing tasks at elevated locations, risk of serious injury could occur from a fall.

- **Confined area landing.** Limited ingress and egress options pose risk as well as numerous obstacles that need to be avoided.

How to minimize errors requires planning. Map out the steps you intend to take before engaging in the task. Anticipate potential errors and the steps needed to minimize or eliminate them.

Incorporating a plan into the example of moving an aircraft out of the hangar could be as simple as communicating to all personnel involved to watch the blades, have multiple spotters, use whistles to communicate in a loud environment, or have a plan for how to stop before damage occurs.

Here are some models to consider:

SAFE Dialogue – from the DOE Human Performance Improvement Handbook (2009)

S – Summarize critical steps
A – Anticipate error traps
F – Foresee consequences
E – Evaluate defenses.

The FAA **I'M SAFE** checklist helps individuals effectively determine physical and mental readiness

Illness: Am I sick? Do I have any symptoms?

Medication: Have I been taking prescription or over-the-counter drugs that might affect my judgment or cause drowsiness?

Stress: Am I under psychological pressure from the job? Am I distracted about financial matters, health problems, or family discord?

Alcohol: Have I been drinking within 8 hours? Within 24 hours?

Fatigue: Am I tired and not adequately rested?

Emotion: Have I experienced any emotionally upsetting event?

Whichever model you choose the idea is to assess the work situation including:

- Task demands (how much attention is this task going to take?)
- Task environment (are there a lot of distractions/interruptions?)
- Individual capabilities (have you done this before?)
- Human nature (we all like to take shortcuts).

Understanding where the high-risk areas are will help you to plan safety defenses to minimize the risk, minimize the errors, etc. As you begin the practice of identifying potential risks (things that could go wrong) you will develop a sense of what activities are high risk and what activities pose low or acceptable risks. Not all activities, if done wrong, are going to lead to an unwanted outcome.

TIER ONE | Competency No. 5

PREPARING FOR AN EMERGENCY

GOAL

Establish an emergency plan for yourself/your organization.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs):

Understand the elements with emergency planning and establish relevant actions for your operation.

TIPS

- Even if you are a sole pilot, it is important to document what actions need to be taken in case of an emergency.
- Part of your emergency plan is letting others know your flight plan.
- Provide a list of phone numbers to coworkers and family members of key people to contact in event of an emergency.
- If you are working alone, give someone the responsibility to check in with you at a designated time(s).

Preparing for an emergency event is largely overlooked by aviation operations, especially if you have a smaller organization or are a personal/private operator. Notably, people see it as an important element to their safety framework but seldom make the effort to adequately prepare. This gap can result in critical mistakes following any type of incident and lack of an emergency plan could worsen the situation for everyone involved. The planning does not have to be cumbersome. You simply need to consider a few elements to help be ready ahead of time. These include:

- Do people know your route of flight or where you are working? How can they get in contact with you? How can they check in with you at a designated time(s)?
- Who will handle your personal affairs, and do they have the right information as well as the authority to do this?
- Create a list of phone numbers for people who need to be contacted following an event. These people should be those who are integral to your operation's function, who can help you carry out any necessary post-event actions, or who have regulatory authority.
- Create a written list of items that should be completed so that you do not skip or forget important details.
- Have a notebook available to write down information about the event, the times of when things happen, names and contact details of people you speak with, and to do items that need to be completed.

Emergency planning may include the placement of a survival kit on each aircraft. Everyone knows you can land a helicopter just about anywhere, but what if you are in a remote location when you land? Do you have the essential supplies to survive a couple of days if needed? This is the power of preparation in action. The plan is to never have to use these items; but if you get into a situation where you need to land now, you will have the resources to survive for a few days if needed. Maybe having a survival kit onboard will make the decision to land and live a little easier.

Here are some considerations for items to include in your survival kit (adjust as necessary for the area of your operations, the remoteness, and type of terrain). It is a good idea to use a bright-colored Dry

Bag to store these items on the aircraft. Make sure it is a different color from the paint on your aircraft so you can find the bag easily in an emergency. You can even enhance its visibility with glow-in-the-dark tape. If you are a single pilot and rent your aircraft, make your own survival kit to bring with you on every flight.

Here are some suggested survival kit supplies. Please modify as necessary for the climate you are operating within.

Check	Item	Check	Item
	Bottled water		Paracord
	Survival blanket		Waterproof matches
	Aerial flares		Firestarter
	Whistles		Knife
	Crank flashlight		Bright-colored 45-gal. garbage bags
	Crank radio		Mirrored compass
	Bug repellent towelettes		Toilet paper
	Sunscreen towelettes		Energy bars
	Duct tape		Survival guidebook

TIER ONE | Competency No. 6

SEEKING FEEDBACK

GOAL

Engage with a VAI Mentor to seek feedback on what is going right as well as what is going wrong. Incorporate flight or task debriefs into a daily routine.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs):

Commit to document those tasks that were executed perfectly as well as tasks that did not go to plan. Identify key factors in what went right as well as what went wrong. Take appropriate action based on the feedback to create habits to continuously improve operations. Meet with a VAI Mentor to help guide you to building the safety culture within your organization.

TIPS

- When you recognize an outcome was different from what you expected/planned, write it down so that you can refer to it and better understand what was needed to correct the issue.
- Begin with a flight debrief: understanding why things went right is just as important as understanding what went wrong.
- Set up a way to track your debriefs: an Excel file would be a simple tool to sort events by date.
- Things that went right are considered leading indicators and things that went wrong are considered lagging indicators.
- Seek a VAI Mentor for additional feedback and guidance.

Seeking feedback is another form of accountability and helps assure proper performance. Think of feedback in the same realm of getting a coach. We have coaches in all levels of sports, there are business coaches, weight loss coaches, and now even life coaches. Partnering with a VAI Mentor is a perfect way to begin the feedback loop. The mentor can help guide you through what things are necessary in a feedback loop as well as provide guidance on building a solid safety culture.

1. Flight Debrief

One place that everyone can start is a flight debrief or a task debrief. Understanding why things went right as well as why things went wrong is important. This process will help you identify both strengths and weaknesses.

EXAMPLE OF THE DEBRIEF PROCESS

- a. **Debrief every event or task.** List what went right, what could have been done better, what went wrong. Regard each flight as a learning event. Invite everyone who was involved to participate in the debrief. Talk about noises that were heard during a flight or things that went flawlessly. All of this is valuable information. By doing these debriefs, you are building your team's trust.
- b. **Start tracking your debriefs.** This could be done in a Microsoft Word or Excel document or in Google docs—capture the data.
- c. **Start looking at your data, once a week.** Look for common threads. What are the things that are consistently working well, and where does your organization need improvement?

2. Quick-Start Template

Appendix A is an editable Quick-Start Template that you can use to help identify your safety mindset statement, set your personal minimums, recognize daily vulnerabilities within your operation, and complete the day with a feedback loop including lessons learned.

Please edit this template as necessary to fit your organization's operation. There are many applications for this template:

- Use it as part of your daily brief as an addition to OEM-provided checklists.
- Get everyone engaged in safety within your organization by using the template (daily/weekly/monthly).
- Complete the template even if you are a sole pilot just flying for fun (highly recommended).
- Use the feedback area to track events and the follow-up associated with both tasks/flights that went flawlessly and those that could use some improvement.

3. VAI Mentoring Program

A VAI organizational member who achieves mentoring status, a form of recognition for their organization's contributions to the overall safety of the vertical aviation industry, may serve as an invaluable resource to you as an individual or to your small organization to help you create your framework for safety. Fill out the Quick-Start Template (Appendix A) and share it with your VAI Mentor for guidance on next steps. Your VAI Mentor may help you edit the Quick-Start Template to better fit your unique operation. The mentor may offer you better insight on the information gathered during your flight debriefs or may help you to prioritize next steps on any concerns you may have. Appendixes B–E contain competency evaluation checklists for Tiers One through Four. Completing the checklists and sharing them with your VAI Mentor would be a solid step to helping ensure your safety culture is moving in the right direction and that you are prioritizing critical tasks and risks within your organization.

SMS TIER TWO FRAMEWORK

The Tier Two framework is designed for those operators and individuals who do not have a formal, written safety management system (SMS) or a formal process for risk management. It is about how to continue building a solid safety framework to allow yourself and other employees to further engage in safety all the time and to encourage safety culture development and maturity.

The objective of this tier is to provide guidance in key areas that contribute to your organization's ability to address hazards while enhancing safety awareness for all members.

Tier Two includes seven (7) competencies that comprise the minimum level of engagement that either you as an individual or your organization must do/demonstrate to achieve Tier Two VAI Framework for Safety recognition.

Tier Two Competencies
1. Defining Safety Responsibilities and Accountabilities
2. Identifying, Understanding, and Controlling Risks
3. Using Training to Maintain and Improve Proficiency
4. Incorporating Just Culture
5. Understanding System Operations
6. Practicing Effective Communication
7. Having an Emergency Response Plan

TIER TWO | Competency No. 1

DEFINING SAFETY RESPONSIBILITIES AND ACCOUNTABILITIES

GOAL

To clearly define safety responsibilities and accountabilities for you as an individual or for all members of your organization.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Identify individual contributions to the safety framework for your operation and develop a list of responsibilities for each position and how each individual will be held accountable.

TIPS

- Accountabilities can be simple. What are your safety responsibilities as an individual? *Example:* get sufficient sleep before a flight, plan the flight, tell others about the planned flight, continuously check the weather, walk around the aircraft, have current training on the specific aircraft, know your limitations and stick to them, etc.
- Use this opportunity to clearly state behaviors that are simply not acceptable because they involve too much risk.
- Avoid the temptation to always say yes or want to try it when conditions are questionable.

Effectively identifying your safety responsibilities and accountabilities is an important step for building engagement and defining your safety culture. This builds upon the concept of a safety mindset as discussed in Tier One. As an individual, you help shape your safety culture with every decision and action that you make each day. If you have established your personal flight minimums, your safety responsibility is to never deviate from those minimums. Even if you are a sole operator, it is recommended that you document your safety responsibilities and accountabilities. Writing them down is a commitment to safety.

To be ENGAGED in safety, everyone in your organization must be involved and have defined roles as it relates to safety responsibilities and accountabilities. Don't look at this as a compliance element; instead, look at this step as building a daily safety net (defenses) for you and your organization.

Safety responsibilities and accountabilities begin with YOU and your organizational culture. Safety is not something that lives in a book on a shelf; it is intertwined in the actions you take every day. We are either setting ourselves up for success or setting ourselves up for failure (unwanted errors). Choose to be engaged in safety!

1. Individual Safety Responsibilities and Accountabilities

Safety starts with accepting the responsibility for your own safety and the safety of others. Each of us has a profound impact on the outcomes of activities we participate in. Holding yourself accountable by always doing the right thing is crucial. You must continue improving your safety mindset and adhere to your personal limits that were discussed in Tier One.

a. Preparation

There is a lot of power in how you prepare for your workday, and it starts with elements that you, as an individual, have full control over. Preparation starts with controlling risk elements that only you as an individual can control. Coming to work prepared with those areas of self-care as

discussed in Tier One will enable you to focus and engage in better decision-making throughout the day.

b. Focus and Awareness

- i. Practice mindfulness. Tier One described mindfulness, being mindful in the moment, as an active practice. Our minds wander constantly. What we need to control is where we are in our mind when we are involved in a critical task. Are we 100% in or thinking about what we are going to do three steps down from now or after we get off work? Check yourself! Only you will know if you did the walk-around with undivided attention. If you can't remember doing the walk-around—or any other critical task—do it again. By the way, this is not uncommon: how many of you have driven home or called a neighbor to check to see if you closed the garage door?
- ii. Do NOT multitask. Some people believe that they are excellent multitaskers, but the reality is that multitasking makes us less efficient and sets us up for errors. The errors creep in as we switch from one task to another. Keep your mind on one task at a time.

Exercise: This is a great illustration of how multitasking does not work and actually slows us down. For this exercise, you will need a stopwatch or timer on your phone. Instructions: For the first part of the exercise, you'll time yourself performing two separate tasks. First, write down each letter of the alphabet, A–Z, then write down the numbers 1–26. When you're finished, record the time.

For the second part of the exercise, you'll time yourself multitasking: write down the letter A and then the number 1, then the letter B and the number 2 and so on until you get to Z and 26. Start your timer and go. You should find that the multitasking version takes you a bit longer to complete.

2. Organizational Safety Responsibilities and Accountabilities

Organizational safety responsibilities and accountabilities need to be incorporated into how your organization operates daily. Whether you are a sole operator or have employees, there are best practices for how things get accomplished. Think of it as a system or process. Who is responsible for safety? The answer is everyone, but with defined roles at all levels of the organization.

a. Safety Is Everyone's Responsibility

A collaborative approach to safety will yield better outcomes for all types of organizations because of the cumulative effect from everyone's knowledge and skill sets. Leadership's commitment to pursuing safety excellence is critical. Without it, all efforts by organizational members will ultimately lose traction and not yield the desired results. Leadership must consider the financial incentive of better safety performance. Research has demonstrated that through active risk management, companies have yielded higher profits because of improved efficiency (fewer mistakes and less downtime) as well as lower costs due to damage and injury.

b. Managing Distractions/Interruptions

All tasks in aviation have a potential impact on safety. We need to ensure that all distractions and interruptions are minimized during critical tasks. Install barriers like a STOP sign in front of work areas to minimize or eliminate interruptions while employees are involved in a critical task like a maintenance activity or an aircraft walk-around. If a critical task is interrupted, go back at least three (3) steps to make sure nothing has been missed or overlooked.

Incorporate a policy of NO CELL PHONE USE during CRITICAL TASKS. Critical tasks are defined as anything that can cause injury, interrupt your mission, or cause damage to the aircraft or the environment.

c. Collective Mindfulness

Much like an individual can benefit from mindfulness, organizations can take the same approach collectively. It is defined as the collective capability to discern discriminatory details about emerging issues and to act swiftly in response to these details. Research has shown that collective mindfulness is positively related to salutary organizational outcomes including greater customer satisfaction, more effective resource allocation, greater innovation, and improved quality, safety, and reliability. Interestingly, these effects are most often observed in particularly trying contexts characterized by complexity, dynamism, and error intolerance—aviation being an excellent example.

Collective mindfulness comprises five interrelated processes at multiple organizational levels:

- preoccupation with failure
- reluctance to simplify interpretations
- sensitivity to operations
- commitment to resilience
- deference to expertise.

Collective mindfulness was originally developed to explain how high-reliability organizations (HROs) avoid catastrophe and perform in a nearly error-free manner under trying conditions. Over time, the focus has expanded to include organizations that pay close attention to what is going on around them, refusing to function on autopilot.

d. Clearly Defined Safety Roles

This may seem like a daunting task, but it is really very simple. List all the different positions in your organization. You may have pilots, mechanics, administrative support staff, aviation managers, directors, vice presidents, etc. Each group of positions within your organization will have a list of expected safety responsibilities and accountabilities. Some will be unique to their position, and some will be common across all positions. One item to include for everyone is the expectation to report hazards or concerns. (A great way to get everyone engaged in safety is to have the group draft a set of safety responsibilities and accountabilities—what they see through their eyes.)

Example: the CHIEF PILOT’s safety responsibilities may include ensuring that training resources are provided for all pilots to maintain their currency. That safety responsibility is unique to the CHIEF PILOT position.

One that would apply to all positions would be something like: “Create and continually reinforce a positive safety culture.”

e. Identifying Organizational Limits/Knowing Coworkers’ Limits

We have discussed the need to set personal limits for many things in Tier One. However, organizations also need to do the same for their employees. We often see this in the form of standard operating procedures or delineated in your general operating manual. If your organization is smaller or does not incorporate these types of documents, you should create a list of limits beyond the basic regulatory requirements that you want everyone to adhere to. In

this way, you can ensure that everyone is aware of your organization's expectations and can support one another to avoid drifting away from the limits.

Areas to consider for your organization:

- Weather-related limits
- Flight limits regarding familiarity of the area of operation
- Limits regarding proficiency with the type of operation (this information—how many flight hours of experience are necessary for your mission—could be included in your hiring process).

TIER TWO | Competency No. 2

IDENTIFYING, UNDERSTANDING, AND CONTROLLING RISKS

GOAL

Identify all hazards that may be encountered within your operation, understand the risk associated, and implement necessary controls.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Ability to recognize hazards, ability to look at processes to reduce risk and/or consequences of hazards, ability to understand and apply risk-control strategies.

TIPS

- Create a method to track events and their hazards.
- Near-miss events (e.g., close calls) are opportunities to clearly review what went wrong as well as what went right. Recognize that there are error precursors in play for every activity and task within your work area. The idea is not to eliminate all human errors but rather to understand they exist and identify what processes you have in place to recognize these error precursors.
- Rank the hazards from high risk to low risk

In aviation, we are constantly vulnerable to hazards causing harm or damage. The key is to minimize the potential for those hazards to result in undesirable outcomes through the use of a risk-management process. Creating a simple yet effective process is essential to help individuals avoid harm or damage.

- **Hazard.** Any existing or potential condition that might cause injury, damage, or an undesirable event.
- **Consequence.** The result, outcome, or loss of an event caused by a hazard(s).
- **Risk.** The predicted probability (likelihood) AND severity of the consequences or outcomes of a hazard.
- **Mitigation.** The process of reducing the level of risk.

1. Identify All Hazards

- a. List all the tasks each individual performs as a function of their job. This is a great opportunity to get employees engaged in safety. Allow each member of your team to assess their individual work activities to help identify hazards. Document the hazards to keep track of them and monitor their controls.
- b. Map out your workflows. Understanding the steps involved and the environment in which you are working is important to understanding potential hazards. A job hazard (safety) assessment (JHA or JSA) is a tool that can take the hazard assessment process to a more granular level that clearly identifies the risk associated with each task in a process.
 - i. A Flight Risk Assessment Tool (FRAT) identifies potential risks.
 - ii. A maintenance risk assessment may include environment, tools, and equipment to complete the task.
- c. Keep tasks and hazards organized for recognition and completion.
 - i. Preflight and post-flight checklists.

- ii. Maintenance-task checklists.
- d. Establish and use a CHECKLIST to help frame flight/work tasks for your everyday operations. This is effective with helping you manage the risk vulnerabilities you may encounter.

ELEMENTS to Include in a Daily Checklist – Pilot

Simple tips to incorporate risk management into everyday operations:

1. Have you addressed fatigue for crew members today?
2. Are you proficient and medically fit for the flight you are about to take?
3. Are there any aircraft maintenance–related limitations?
4. Do you check the weather before a flight?
5. Do you have the capability to check for weather during a flight?
6. Do you plan your route ahead of time?
7. Will you need to make a fuel stop along your route of flight?
8. Do you have predetermined landing areas in mind if the weather changes?
9. Do you feel pressure to take a flight when there are indicators that you should not take the flight (indicators could be fatigue, weather, etc.)?
10. Be sure to follow OEM checklists and not do it from memory.
11. What is your flight-following plan in case you are overdue?

ELEMENTS to Include in a Daily Checklist – Mechanic

Simple tips to incorporate risk management into everyday operations:

1. Do you have current OEM documentation and airworthiness directives on the procedures to be performed?
2. Have you reviewed the OEM guidance on nonroutine tasks to be performed?
3. Do you have a tool control plan?
4. Do you have an area free from interruptions to perform maintenance? Do you have a sign up that reminds people not to interrupt you? Is this a no cell phone area?
5. Do you have necessary support equipment to prevent falls and safely access aircraft areas?
6. Do you have the right tools for the job?
7. Do you have access to necessary reference materials and resources for all maintenance tasks?
8. Do you feel pressure to rush maintenance or not perform all tasks?
9. Do you have a method of providing personal safety check-ins when working alone?

2. Analyze and Assess the Risk

- a. After all hazards have been clearly identified and documented, understand what the risk is to the individual if things go wrong. Is it an acceptable risk or a not-acceptable risk? We must understand the potential severity and probability of those hazards as well as the consequences that may result in an unwanted outcome. Define the potential for injury and impact that may

result from an accident/incident related to operating while exposed to the hazard (Analysis). You must also assess whether the risk is acceptable (Assessment). This provides a qualitative and quantitative value for determining acceptability or tolerability.

- i. Safety risk probability is defined as the likelihood or frequency that a safety consequence or outcome might occur.
 - ii. Safety risk severity is defined as the extent of harm that might reasonably occur as a consequence or outcome of the identified hazard.
- b. Risk Matrix. A risk matrix provides you with a way to integrate the effect of severity with the probability of the occurrence. Risk analysis and assessments are based on judgment, experience, and previous processes. You can create a score or index by using colors, labels, or alphanumeric designations. You can customize a matrix for your needs using various scales for probability and severity. It is recommended that you define what each scale means for you and your organization. An example from the International Civil Aviation Organization (ICAO) is below.

Risk probability	Risk severity				
	Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent 5	5A	5B	5C	5D	5E
Occasional 4	4A	4B	4C	4D	4E
Remote 3	3A	3B	3C	3D	3E
Improbable 2	2A	2B	2C	2D	2E
Extremely improbable 1	1A	1B	1C	1D	1E

Example Risk Matrix

Source: ICAO

<i>Likelihood</i>	<i>Meaning</i>	<i>Value</i>
Frequent	Likely to occur many times (has occurred frequently)	5
Occasional	Likely to occur sometimes (has occurred infrequently)	4
Remote	Unlikely to occur, but possible (has occurred rarely)	3
Improbable	Very unlikely to occur (not known to have occurred)	2
Extremely improbable	Almost inconceivable that the event will occur	1

Risk Likelihood (Probability) Key

Source: ICAO

<i>Severity</i>	<i>Meaning</i>	<i>Value</i>
Catastrophic	<ul style="list-style-type: none"> — Equipment destroyed — Multiple deaths 	A
Hazardous	<ul style="list-style-type: none"> — A large reduction in safety margins, physical distress or a workload such that the operators cannot be relied upon to perform their tasks accurately or completely — Serious injury — Major equipment damage 	B
Major	<ul style="list-style-type: none"> — A significant reduction in safety margins, a reduction in the ability of the operators to cope with adverse operating conditions as a result of an increase in workload or as a result of conditions impairing their efficiency — Serious incident — Injury to persons 	C
Minor	<ul style="list-style-type: none"> — Nuisance — Operating limitations — Use of emergency procedures — Minor incident 	D
Negligible	<ul style="list-style-type: none"> — Few consequences 	E

Risk Severity (Consequence) Key

Source: ICAO

3. Manage or Control the Consequence

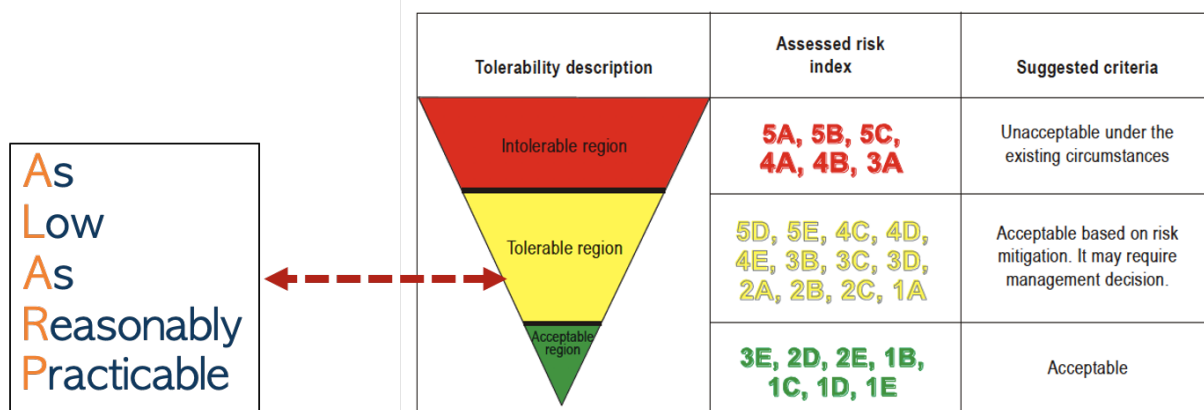
After the impacts of hazards and their associated risk are fully understood, risk controls must be designed for those risks that the organization deems unacceptable. Risk controls will target the conditions that you think will cause an accident or affect its severity or likelihood.

- a. Root Cause Analysis (RCA) of an event is important to help you understand what the true hazards are. Be sure to conduct an adequate investigation to assure that you know what really happened. Several investigation models can be used, such as the bowtie or fishbone diagram. Another method is to use the “Five Why” process: you repeatedly ask the simple question of why did this happen? For each answer, you then ask why again and continue until you have completed this process five times (or more if necessary). The goal is to reveal through persistent inquiry the exact reason(s) that caused the event.

Example (Source: Toyota): Problem – A welding robot stopped in the middle of its operation.

1. *Why did the robot stop?*
The circuit has overloaded, causing a fuse to blow.
2. *Why is the circuit overloaded?*
There was insufficient lubrication on the bearings, so they locked up.
3. *Why was there insufficient lubrication on the bearings?*
The oil pump on the robot is not circulating sufficient oil.
4. *Why is the pump not circulating sufficient oil?*
The pump intake is clogged with metal shavings.
5. *Why is the intake clogged with metal shavings?*
Because there is no filter on the pump.

- b. As Low as Reasonably Practicable (ALARP) or Acceptable Level of Safety (ALoS) are methods for deciding what is acceptable or tolerable to you and your organization.
 - i. ALARP is a point at which a risk is reduced so low that further risk-reduction measures are not required.
 - ii. Any further risk reduction is either impractical or is grossly outweighed by the costs.
 - iii. Simply a balancing of risk-reduction feasibility and the cost of achieving it.



ALARP Diagram

Source: ICAO

- c. Hazards can be mitigated by maintaining situational awareness. Training to recognize hazards and risks can be practiced and learned.
 - i. Tabletop exercises using scenarios from previous events
 - ii. Expanded flight briefings to include safety procedures
 - iii. Human-factors training reviews critical areas of teamwork, communication, situational awareness, and decision-making
 - 1. Crew Resource Management
 - 2. Maintenance Resource Management
 - 3. Just Culture

Human error can also lead to undesirable outcomes. Being able to recognize the situations that can lead to errors occurring will help you minimize the consequences of an error when it does occur.

The following table is an excerpt (short list) of error precursors from the DOE Human Performance Improvement Handbook (2009). How many of these can you check off before you even begin a task?

Table 1: Top Error Precursors

Task Demands	Individual Capabilities
<input type="checkbox"/> Time pressure (in a hurry)	<input type="checkbox"/> Unfamiliar with task
<input type="checkbox"/> High workload (memory issues)	<input type="checkbox"/> Lack of knowledge
<input type="checkbox"/> Simultaneous multiple tasks	<input type="checkbox"/> New technique (not used before)
<input type="checkbox"/> Repetitive actions (monotonous)	<input type="checkbox"/> Imprecise communication habits
<input type="checkbox"/> Irrecoverable acts	<input type="checkbox"/> Lack of proficiency/inexperience
<input type="checkbox"/> Interpretation requirement	<input type="checkbox"/> Indistinct problem-solving skills
<input type="checkbox"/> Unclear goals, roles, responsibilities	<input type="checkbox"/> Hazardous attitude for critical task
<input type="checkbox"/> Lack of or unclear standards	<input type="checkbox"/> Illness/fatigue

Table continues next page

Work Environment	Human Nature
<input type="checkbox"/> Distractions/Interruptions	<input type="checkbox"/> Stress (limits attention)
<input type="checkbox"/> Changes/Departures from routine	<input type="checkbox"/> Habit patterns
<input type="checkbox"/> Confusing displays or controls	<input type="checkbox"/> Assumptions (inaccurate mental picture)
<input type="checkbox"/> Workarounds/OOS instruments	<input type="checkbox"/> Complacency/Overconfidence
<input type="checkbox"/> Hidden system response	<input type="checkbox"/> Mindset
<input type="checkbox"/> Unexpected equipment conditions	<input type="checkbox"/> Inaccurate risk perception (Pollyanna)
<input type="checkbox"/> Lack of alternative indication	<input type="checkbox"/> Mental shortcuts (biases)
<input type="checkbox"/> Personality conflicts	<input type="checkbox"/> Limited short-term memory

Source: DOE Human Performance Improvement Handbook (2009)


Look at these as risk-management vulnerabilities that should be considered, managed, or minimized. Maybe by looking at this list you realize that you need to take a few steps back and reevaluate the situation. Do you do the task? Do you take the flight? This is managing safety risk in real time.

If you experience an unwanted event or a near miss, look at the error precursor table and identify how many precursors were present before the event. This is your system or your organization's system in action.

** The routineness of our tasks can allow complacency and workarounds that end up exposing us to more risk (refer to Tier Four for additional information).


- d. Create a separate daily checklist for CRITICAL STEPS associated with pilots and maintenance personnel.

The Department of Energy (DOE) has developed a process called human performance improvement (HPI). The idea is to try to stop errors in real time to minimize their consequences. One small change can have enormous results. Here is one small change that you can incorporate into your system now to trap errors in real time, even if you are a sole pilot: for each critical task, complete an HPI checklist that includes a self-check, peer check, trust but verify, and a have a questioning attitude step (see graphic, next page).



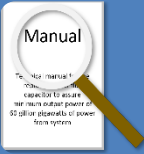
Self-Check

Did I do it? Did I do it right? I don't remember doing the walk-around.




Peer Check

I am not sure about this, so I am going to phone a friend or ask a coworker, etc.



Trust but Verify

I think I know how to do this, but I am going to check the reference (manual). I heard what my coworker said, but I am going to verify that it is true.



Have a Questioning Attitude

I wonder why this is stored here? I wonder why we do it this way? Did I do my walk-around? Did I follow the checklist? Never stop asking questions! Asking questions helps to stop errors in real time.

Our risk management process is vulnerable when we are not being engaged (mindful in the moment). This is especially important during the performance of critical tasks. If you are just being compliant, you are likely to miss an important detail.

Here are some examples to illustrate the difference between being engaged and being compliant during a critical task.

Example: Professional engaged approach to a walk-around: Your hands are free to touch the aircraft as you are checking all doors and maintenance access points to make sure they are secured. You make sure there are no tie-downs in place and no tools left behind. You do this every time, even on multiple start-ups. You are in the moment: you look and think only about the aircraft for these 45 seconds. It is your last safety check before you start up and lift off.

Example: Compliance approach to a walk-around: You are finishing up a phone call to check weather. You walk right under a tie-down as you are doing your walk-around. You don't remember seeing it. You miss it because your focus is on the phone call, not the walk-around. Both checking the weather and completing a walk-around are equally important critical tasks, yet you do them at the same time. The better approach: Do them one at a time.

TIER TWO | Competency No. 3

USING TRAINING TO MAINTAIN AND IMPROVE PROFICIENCY

GOAL

Recognize the importance of how diligent training will help you maintain and improve proficiencies and minimize overall risks.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Organize proficiency training and create record-keeping systems (e.g., use of spreadsheets or online forms). Maintain proficiency by using training effectively to practice perishable skills.

TIPS

- Recognize what areas need to be improved.
- You can easily set up training schedules and records management in Google Documents or similar programs without purchasing expensive software.
- Read NTSB reports on industry accidents or ask your instructor to review case studies from accident reports as part of scenario-based training.
- Have a questioning attitude.
- Use annual training to review areas that you feel less competent in, such as perishable skills that you get less practice in during normal operations. Self-check.
- To maintain proficiency: train how you fly. Fly like you train.

Proficiency is a perishable skill. Through training, individuals and organizations can achieve higher levels of proficiency. The ability to be proficient at our daily tasks is essential to prevent unwanted outcomes. In today's world, learning is on a continuum.

There are new technologies, improvements to aircraft, new real-time technology to help us make better decisions, and new generations to communicate with at work. Each organization should have a basic training plan to ensure that proficiency on both the equipment and aircraft are up-to-date.

A basic training plan considers familiarization of aircraft and training resources as well as training frequency, which is based on aircraft and operation type. A basic training plan may include:

- Elements of proficiency to enhance your performance
- Really understanding your aircraft's performance and familiarization knowledge
- What your capabilities are – focusing on weaknesses
- Dedicating the time for training
- Keeping records of training
- Staying aware of industry trends
- Debriefing internal and external lessons learned.

STAYING AWARE

Training is also about staying aware of industry trends and safety recommendations. Reading information from industry organizations and regulatory agencies that provide insight and recommended practices is highly encouraged. This can be done by following organizations on social media, reading accident reports, and reading industry publications. Many industry organizations offer their material online, and some offer daily newsletters via email.

TIER TWO | Competency No. 4 INCORPORATING JUST CULTURE

GOAL

Understand the just culture model and how to incorporate it into your operation. Create a positive safety culture within your organization and ensure the just culture process is understood by everyone.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Emphasize comprehension and practical application of safety culture within your operation. Understand how an organization's culture affects performance and the importance of fairness when addressing errors or mistakes. Be able to recognize the difference between human error and system errors/latent conditions.

TIPS

- The just culture process should provide a framework that fairly addresses deviations from compliance with policies (e.g., workarounds).
- The idea of just culture is to create an environment where people are not afraid to report mishaps, near misses, etc., without fear of repercussions.
- Recognize that unwanted events are not typically the fault of one individual; rather, it's a reflection that the system failed, not the last person who hit the button.
- Separate how well your system manages and mitigates risks from the individuals who were involved in the unwanted event.
- Investigating your organization's near misses is invaluable to helping you understand how your operational system allowed that event to happen.
- Recognize that all events, GOOD and BAD, are system outputs.

Safety does not occur simply because you have a safety policy statement, much like you don't get in shape by subscribing to a gym membership. Safety cultures cannot be defined by management decree, no matter how sincere leadership's intentions. A strong, viable safety culture requires a proactive and open approach by individuals and their organization and shared ways of thinking, behaving, and believing that place a special priority on safety. Dr. James Reason identified several characteristics that are important for achieving a safety culture: just culture, informed culture, reporting culture, learning culture and flexibility culture. Taken together, the five characteristics form a culture of trust and of being informed. This takes time and must be developed to assure a safety mindset is embraced. A foundational component of this concept is the idea of a just and fair culture. A 'no blame' atmosphere where people are encouraged to provide essential safety-related information, where there is also a clear line between acceptable and unacceptable behavior.

JUST CULTURE ATTITUDE

Establish how you and your organization will respond to human errors. Effective communication is a key component of nourishing a just culture every day. Encourage 3-way communication so that everyone has a better chance of understanding what the communication was intended to convey. Just culture should not be a flowchart on the wall for what happens if you make an error, it is something that is practiced every day.

Just culture should be used in the process of investigating unwanted events. Instead of using the blame game and punishing those parties involved, take a look at the event from the perspective that this is a system output. Looking at the unwanted event from the perspective of “how did our system allow this to happen” will unveil layers of otherwise hidden workarounds or policy that doesn’t exist. Mistakes are considered learning opportunities: was the individual trained properly; was the right equipment available, etc. The just culture process will help differentiate between a mistake and a violation.

Human behaviors should be incorporated into your just culture process, and expectations relating to the behaviors should be identified.

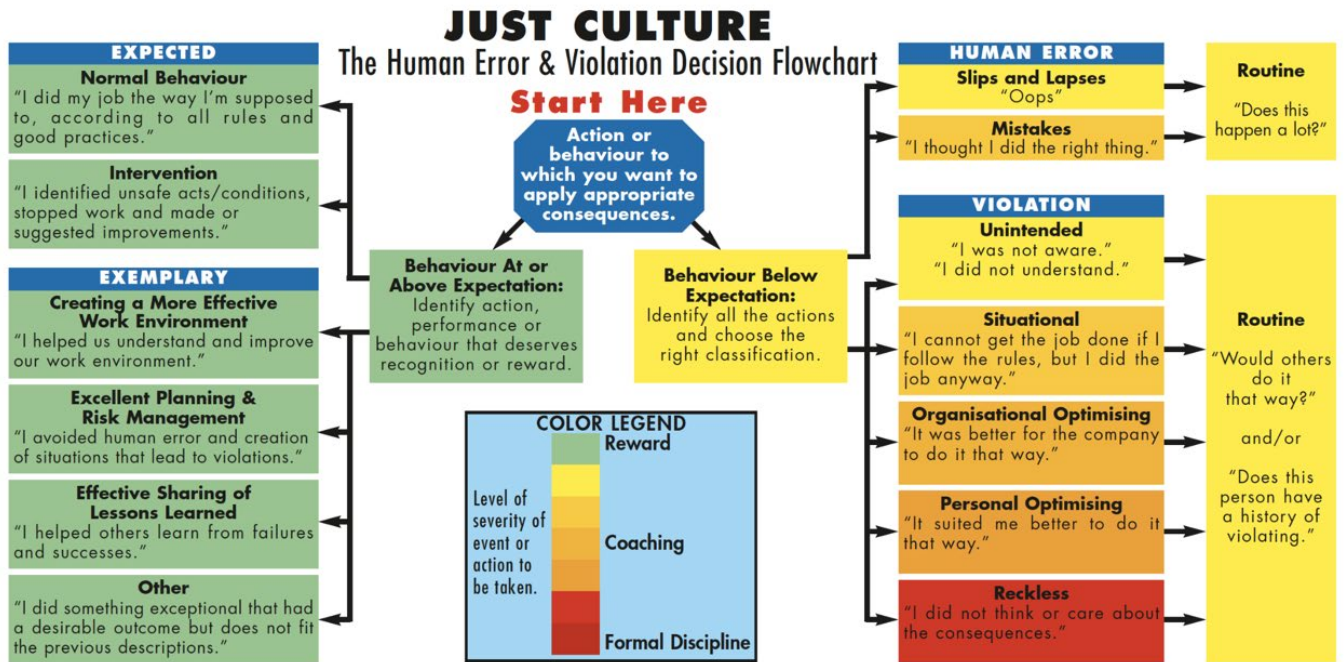
- **Human error.** Inadvertent action; mistakenly doing other than what should be done; a slip, lapse, error in judgment.
- **At-risk behavior.** Behavior that increases risk in situations where the individual doesn’t recognize the risk or mistakenly believes it is justified.
- **Reckless behavior.** A behavioral choice to consciously disregard a substantial and unjustifiable risk.

START HERE

- Step 1** Recognize the importance of a safety culture and having an environment where all errors, mistakes, and lapses are reported. These are all learning events and opportunities for improvement.
- Step 2** Accept that errors will be made in daily operations and identify safety defenses to minimize the consequences of human errors.
- Step 3** Encourage open communication to create a culture where there is no fear of reporting errors or suggesting improvements, to create awareness about how your system is working.
- Step 4** Clearly define to your employees what is acceptable behavior and what behavior will not be tolerated (the deal-breakers).

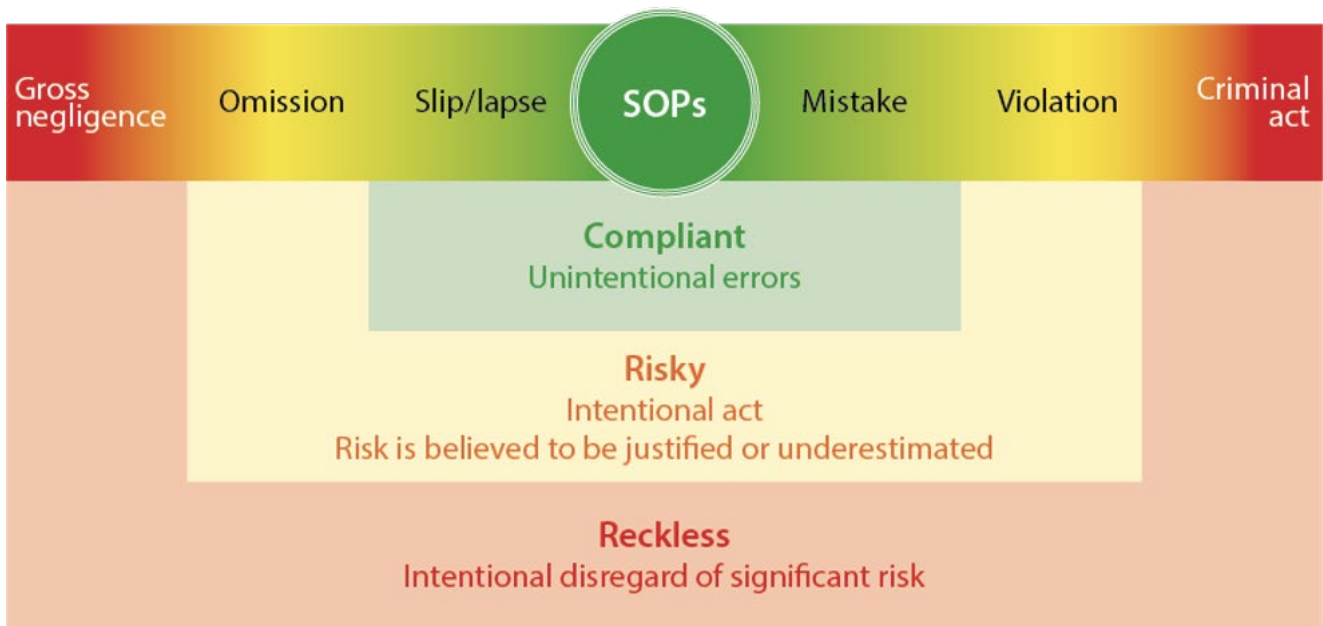
Just culture framework: to create an environment with open communication.

The following graphics offer examples of just culture models.



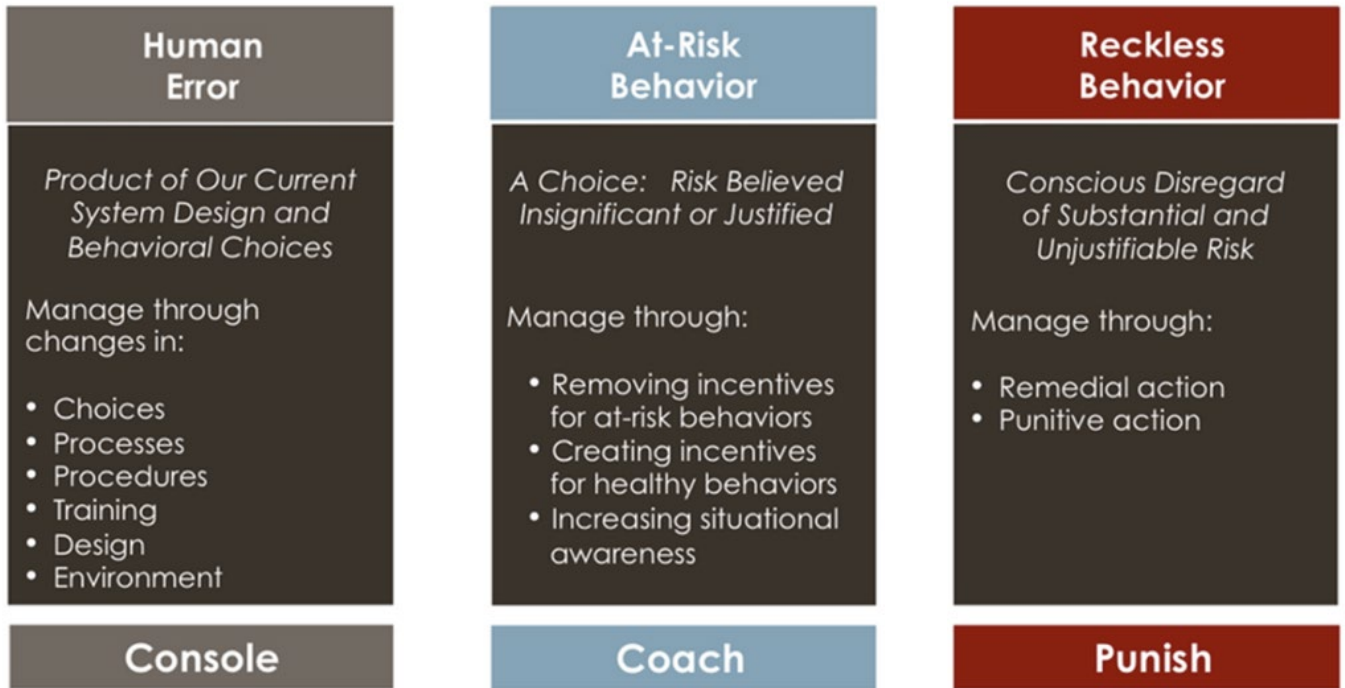
Just Culture Model

Source: IHST SMS Toolkit



Just Culture Model

Source: United Airlines



Just Culture Model

Source: FAA

TIER TWO | Competency No. 5

UNDERSTANDING SYSTEM OPERATIONS

GOAL

Understanding how all facets of your system (organization or process) operate.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Recognize that all facets of your operation have an element of safety intertwined into the process. Evaluate how the system works through system descriptions, observations, tracking events (positive and negative), audits, and employee communications.

TIPS

- Identify your system inputs and outputs.
- Identify the internal and external influences that affect your system.
- Look at both the positive and the unwanted events that happen on a daily basis. This is your system working. Think of your system outputs as “the way we do things.”

Safety must be considered in the context of the overall system, not as isolated individuals, parts, events, or outcomes. Most problems and most possibilities for improvement belong to the system. Seek to understand the system holistically and consider interactions between elements of the system. In a system, everything is connected to something; nothing is completely independent.

A system is an integrated network of people and other resources performing activities that accomplish some mission or goal in a prescribed environment. It is important to understand how all the facets of your organization are connected as well as how the broader system in which you operate is intertwined. Each area can have a dependency on the other to assure productivity. Are you aware of the possible effects each area could have with another? You need all areas to work well for the entire system to have positive outcomes.

Example: The local airport FBO provides your operation with fuel. Unfortunately, its fuel truck is being repaired and is temporarily unavailable. You receive a short-notice job opportunity to conduct an aerial photo flight that day. How do you get the necessary fuel you need? Did the FBO give you prior notification? Do you have an alternative option at a nearby location? How will this alter your initial plan? You can see the outside effect that a supplier can have on your system.

It can take time to understand the numerous inputs and outputs within your system. Knowing how the process flows and how things really work is essential to recognizing the relationships that exist within your system. Understanding the flow within your system reveals which processes are more sensitive to rapid changes and could become critical if not managed correctly.

We discuss managing change in Tier Three. Have you taken the time to briefly map out the steps involved in a particular activity that your business performs or you are personally involved in? This does not need to be a complicated or a lengthy process. Simply list the steps involved to complete the task. With this information, you can better understand what other effects may exist as well as what potential hazards might be encountered.

We also know that most actions leading to a safety event are caused by system vulnerabilities. The system flow of cause-and-effect relations is nonlinear. This means small changes can produce disproportionately large effects. Effects usually have multiple causes, although all causes may not be traceable and are socially constructed. Organizations should focus on correcting system vulnerabilities instead of blaming individuals for errors, as we learned in Tier Two's Just Culture overview (Competency No. 4). The DOE Human Performance Improvement document addresses system errors. It is important to look at your organizational process as a system. Your system has both good and unwanted outputs. Looking at the system errors that resulted in an unwanted output helps to lean away from the blame game and helps to reinforce a just culture model.

LEADING AND LAGGING INDICATORS

It is important for organizations to recognize the difference between leading and lagging indicators.

Leading indicators are proactive in nature. They are the positives, such as the number of employee communications, the quality of a daily briefing, the peer-to-peer recognition for things that have been executed flawlessly.

Lagging indicators are things like accident rates, injury rates, the number of near misses, etc. Many industries tend to focus on lagging indicators only. This can lead to more unwanted outcomes. For example, if your organization focuses on a lagging indicator of unwanted errors, then what happens if employees stop reporting them for fear of repercussions?

High-reliability organizations have shifted their focus to the leading indicators. As a result, many unwanted lagging indicators have simply disappeared. It is a good practice to move your organization to focus more on the leading indicators. This may sound simple, but it is not necessarily easy. Tier Three provides additional guidance.

TIER TWO | Competency No. 6

PRACTICING EFFECTIVE COMMUNICATION

GOAL

Define and practice effective communication to ensure safe operations, situational awareness, and good decisions.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Ability to understand good communication skills and strategies. Apply this in daily operations.

TIPS

- A questioning attitude helps to trap errors in real time. Ask questions... repeat what you thought you just heard. *Example:* “Just to make sure I got this right, I heard you say _____,” (fill in the blank) and end with ... “Did I get that right?”
- Think about ordering a pizza on the phone: how many times is your order confirmed? If only we could use this practice for all communications involving critical tasks.

Communication continues to be a challenge in our human existence. It seems that we misunderstand what the communicator is trying to say more often than we receive a clear transfer of knowledge of the information offered. ALL of us listen through our own filters. More often we hear what we expected to hear than what was actually said.

Developing effective communication techniques not only is an individual goal, but it also becomes critical in developing and nurturing your company culture. If your company culture is to have an open-door policy where anyone can bring safety issues to management’s attention at any time, be sure that policy is respected ALL the time. For example, if an employee brings a safety concern message to management over the weekend and the person is then reprimanded for bothering management on the weekend, the company is not practicing an open-door policy. That negative response to an employee bringing a safety issue to management’s attention will result in reduced reporting in the future.

1. Individual Communication

When you are engaged in a conversation, practice active listening. This is huge! Many of us stop listening before the other person has stopped speaking because we want to interject our view or our life example. Take a deep breath and just listen to what the other person is saying. Be in the moment, digest it, and listen with the purpose of trying to understand what is being said.

- **Ask the right questions.** Especially regarding the issues that are keeping you up at night. Don’t let yourself get distracted by worrying about those issues; rather, ask questions about what can be done to help solve them.
- **State your opinion on the safety of a task.** Discuss options and work out any differences.
- **Ensure your understanding** by summarizing what you heard (3-way communication) or by asking others to repeat what you communicated. We do this when repeating a clearance to air traffic control or even when ordering a pizza. This should be done with all safety communications.
- **Explain acronyms.** If you use acronyms, explain them to ensure all parties understand.
- **Manage resources.** We don’t have all the answers. Communicating questions and checking for options lead to informed decisions.

2. Organizational Communication

There are three main elements for organizational communication:

- **3-way communication.** Ensure that the message was correctly received by summarizing or asking the receiver to summarize what was heard. This can apply to your customers and coworkers. *Example:* use when you are giving directions to an employee.
- **Organizational messaging framework.** How do you get your messaging as an organization to your employees? Developing a system to do this ensures that all policy updates are received, important company information is delivered, etc.
- **Employee feedback loop.** How do the employees get information back to the leadership team?

The following paragraphs outline these considerations in more detail.

a. Practicing 3-Way Communication

Think of communication as being the backbone of your work group and your organization. It is critical to get the communication piece right. Most of us often get it wrong. We fill in the blanks based on our experiences rather than ask more questions to get a clear mental picture.

Communication is essential, especially during critical tasks. Usually that type of communication is short and direct. *Example:* “Wires at 2 o’clock.”

But what about communication that is more nebulous? What does the phrase “weather is iffy” really mean? Have the courage to be engaged in communication. Being engaged means active listening and asking clarifying questions or repeating what you heard and ask the question, “Did I get that right?” Many of our unwanted events happen because we did not have a clear mental picture of what the other person was asking us to do.

Make 3-way communication the norm in your operations. Practice active listening. Listen with the intent to understand. This sounds so simple, but it is not. Most of us start forming our response way before the other person is done talking. Respond back to confirm what you have heard.

Don’t assume that everyone you are communicating with understands your context and your level of understanding. Three-way communication helps to resolve the gap between what was intended to be communicated and what the receiver actually heard.

Using acronyms might be confusing depending on the individual's experience. You can create a shared document that lists common acronyms used in your organization.

Communication helps to build trust, establish relationships, and heighten awareness.

Example: You receive communication from an individual. You restate what you heard back to the individual and ask Did I get that right? The individual then has an opportunity either to confirm that you have a clear mental picture of the task or to clarify by providing further explanation. So much of our communication is one-way, and we go off to complete a task with an unclear mental picture.

Incorporating crew resource management training into your organization’s training plan is a good idea to facilitate communication best practices and enable team members to learn effective ways to interact with one another.

b. How the Organization Communicates with Employees

There should be a framework or process in place for how the organization communicates with its employees. Reviewing the effectiveness of how information is reaching your audience is a key factor in a safety culture. Some ideas include the following:

- Email
- Monthly meetings
- Safety stand-downs
- Policy updates
- Newsletters
- Near-miss summaries
- Just-in-time training
- Feedback process

c. How the Employee Communicates with the Organization

Even more important is how employees are getting information back to the leadership team. Getting information from the front line, so to speak, is integral to understanding how your operation is working. Does your organization have a mechanism for how employees can communicate safety hazards or safety concerns? There are many models to follow; make sure the one you choose fits your organization.

If you have a “see something, say something” program, ensure that all levels of management support its use. If even one person in your organization reprimands an employee for reaching out at the wrong time of day, it will easily END the openness of reporting from the front line.

TIER TWO | Competency No. 7

HAVING AN EMERGENCY RESPONSE PLAN

GOAL

Create a formal emergency response plan, test it, and practice it.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Understand the necessary attributes for responding effectively to different types of emergencies. Commit the time to test the emergency response plan to ensure that it will work as planned.

TIPS

- Create checklists for various emergency scenarios (e.g., severe weather, bomb threat, overdue aircraft, etc.).
- Update phone lists and other emergency contact information periodically. Timing should be tailored to your company; some may need to do this quarterly, but an annual review at least is recommended.
- Stage a fire drill. Does your organization have a planned muster point and does everyone know its location? How long does evacuation take? Do personnel respond to the alarm and leave immediately, or do they stay in the building?
- Test, test, test! Practice what you planned so you know that it works.

From an organizational perspective, the ability to prepare for an incident or accident will determine your capacity to recover from such an event. A solid emergency response plan (ERP), also referred to as a post-accident/incident plan (PAIP), will contain the steps or actions that your operation will complete related to an event, such as gather and verify information; notify/communicate with internal and external personnel; focus resources; assist emergency responders and investigation agencies; and plan for future operations.

Your plan should also include plans for several “what if?” scenarios. Here are a few examples to consider.

What if:

- An accident causes injuries to personnel and damages the aircraft?
- Someone falls off the aircraft while working alone at night?
- A severe weather event damages the hangar?
- An aircraft is overdue?

Taking time to think through these scenarios and documenting actions every employee would take will have a beneficial impact in the aftermath of the event should any of these scenarios occur. The ability to react effectively can make a difficult time less challenging and help move the organization more quickly to recovery mode.

Additional emergency response plan elements to consider incorporating:

- **Practicing what you’ve planned!** Periodically review or conduct exercises/drills to see where gaps in planning may exist. Even if this might seem inconvenient to your organization’s daily operations or routine, it is your only way to confirm what you are capable of accomplishing.

Consider involving all pertinent stakeholders in your plan as well as scenarios using your frontline workers and assets. Even verifying phone numbers of contact personnel can help.

- **Gathering documentation.** Following an event, you will need to collect necessary documentation about the aircraft, personnel, and training and keep in a secure place until needed.
- **Having prepared statements** to provide to media representatives or other officials.
- **Planning for continued operations.** If your aircraft cannot be used or personnel are unavailable following an event, how will you continue operations for your other customers in the near future?
- **Incorporating other types of emergency events.** Do you have plans for severe weather, bomb threats, active shooter situations, hijacking, fire, health-related scenarios, etc.

Determining the best communication methods for disseminating information among your employees is another important element of an ERP. Is that via email, phone, text, etc.? Also note that as people, roles, and lines of business change within your organization, the emergency plan will evolve with you. Therefore, you should review and update your emergency plan at least once a year and also inspect your aircraft survival kit(s) annually.

SMS TIER THREE FRAMEWORK

Tier Three framework is designed for those operators and individuals who have established safety practices and have defined roles and responsibilities as well as consistent training processes.

The objective of this tier is to guide organizations to build a unique SMS tailored to their operations based on the accomplishments and tasks completed in Tiers One and Two.

Tier Three includes six (6) competencies that comprise the minimum standard of engagement that either you as an individual or your organization must do/demonstrate to achieve Tier Three VAI Framework of Safety recognition.

Tier Three Competencies
1. Measuring Performance.
2. Maturing the Safety Culture.
3. Understanding Change Management and Continuous Improvement.
4. Maintaining a Formal Training Program.
5. Identifying Designated Safety Personnel.
6. Implementing a Safety Management System (SMS).

TIER THREE | Competency No. 1

MEASURING PERFORMANCE

GOAL

Evaluate system outputs to understand your organizational strengths and vulnerabilities.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Develop a process of measuring system outputs through a variety of methods. Examples include audits, employee communications, evaluation of near misses, meeting goals and objectives.

TIPS

- Confirm processes and procedures through internal evaluation (audits).
- Document all findings of internal audits, being careful not to fix problems as you are doing the audit. It is important to document the finding and not just fix it.
- Review unwanted events and create a lessons learned program so that all within your organization can see where the system went wrong.
- Near misses or “close calls” offer a wealth of information to how things are working to help you discover areas for improvement.
- Safety evaluation checklists are available as resources from accrediting organizations and can be adapted to fit your operation.
- Use lessons learned to help communicate to your workforce both the hazards and the safety defenses that were in place or missing.
- Apply lessons learned for future success.

Understanding your system and its outputs is essential. Measuring predetermined performance indicators is one way to evaluate how well your system is performing. These indicators, often referred as safety performance indicators (SPIs) or key performance indicators (KPIs), are based on the goals and objectives established in your safety policy. Tracking these indicators is a way of determining whether your organization is meeting expectations. As an example, to evaluate the reporting culture of your organization, you could track the frequency of safety report submissions.

Safety assurance is essentially a framework to monitor, measure, and evaluate processes within your organization. The purpose of a safety assurance program is to check that processes are operating according to expectations. Think of it as a checks and balances system. For example, sometimes workarounds get incorporated as habits even though there are no written policies or other guidance about the workarounds. The workaround could be a better way to complete a new task, or it could introduce new hazards. Monitoring how things get done is one way for you to check and see whether things are working as designed. If not, then you can determine whether employees need to follow the written procedures or whether the written procedures need to be updated to incorporate the workaround that everyone is already following.

The next paragraphs outline various methods for evaluating safety assurance within your organization. This list is not all-inclusive. Organizations may have unique ways of measuring safety assurance.

1. Flight Debriefs

The simplest form of safety assurance is the flight debrief discussed in Tier One, Competency No. 6. The flight debrief does not get used nearly enough in daily operation. However, no matter the size of your organization (just you to a huge fleet of aircraft and personnel) the idea of a flight debrief can be implemented immediately. Be sure to go over every task (those that were executed perfectly and those that could use some improvement) and do not let yourself or your coworkers abbreviate the debrief to “Everybody good?” or “Any comments on the flight?”

This process should help you determine how your system is working. The flight debriefs are foundational to establishing a sound just culture in your organization, where no employee fears repercussion for reporting unwanted events. These are all learning events of how your system is working.

2. Self-Audits

An audit and internal evaluation program (IEP) are fundamental elements to determine compliance with external regulatory requirements, identify nonconformance to internal company policies and procedures, and identify opportunities to improve organizational policies, procedures, and processes. Audits can also be used to assess the effectiveness of a process or procedure with achieving its purpose consistently. Whenever a gap or finding is identified, you need to document the instance so that you have a record of it and what was done to correct it. This is especially important in case of a repeat occurrence, to better understand why the corrective action was not effective. In theory, internal audits should have more findings than external audits. The problem that often occurs when conducting internal audits, however, is that the evaluator (an internal employee) will correct a deficiency during the audit process and not report it. The employee may think fixing the issue immediately saves time and energy. Because the deficiency doesn't get reported, no follow-up is recommended and the issue will likely repeat itself.

3. Lessons Learned – Positive and Negative

Sometimes it is hard for people to see when things are going wrong in real time while they are easily able to discern, often with obvious pain, why things went wrong. Hindsight is 20/20 as they say. We are not finding new ways to crash helicopters, that is a fact. For every mishap, thousands of missions are executed flawlessly. We all have opinions about why a certain incident happened. However, the new focus for highly reliable organizations is to focus more on what went right (leading indicators).

4. Near Miss Reviews for Lessons Learned

Reviewing a near miss or close call is a form of feedback. Reflecting on missions that were executed flawlessly is also feedback. The feedback (positive or negative) is how you (your system, your organization) are operating. Taking the time to reflect personally (as a sole pilot or mechanic) as well as with your crews about what went well and why it was executed so perfectly helps you build a solid safety foundation. When you have a near miss, review it as if you were reviewing a fatal accident so that you can better understand where your personal and your organization's safety vulnerabilities lie. This feedback gives you the gift of time to correct these vulnerabilities before a serious unwanted event occurs.

Use the feedback to develop lessons learned so that your operations can continually implement improvements. Lessons learned can easily become training topics for your organization.

Gaining a better understanding of areas for improvement is an important element in aviation. We need to be aware of organizational strengths and weaknesses and have the organizational flexibility to make changes when needed.

5. Employee Feedback Loop

A mechanism for employee communication (feedback) is essential. Pay close attention to what employees are saying. What are they seeing and hearing? If a nonpilot or non-mechanic mentions hearing a weird noise on the aircraft, does the organization acknowledge it, or does that information slip until a bigger problem arises? Employee communication is a key factor in safety assurance. If you have a communication process and employees are not receiving responses to their feedback, the program will fall apart. Employee communications are an essential component of your safety engagement. Remember from Tier Two, Competency No. 4 that a just culture should ensure employee communications are received without fear of repercussion.

System Quick Check

1. What activities are you currently doing that you should stop or modify?
2. What activities to improve your system do you need to start?
3. What current activities are effective in helping you maintain your system?

TIER THREE | Competency No. 2

MATURING THE SAFETY CULTURE

GOAL

Maturing the safety culture model and incorporating it into your type of operation. Focus on informed culture, reporting culture, just culture, learning culture, and flexibility culture.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Ability to recognize and assess safety issues as opportunities for training and policy change.

TIPS

- Ego check – mistakes are okay, but learn from them.
- Review standard operating procedures (SOPs) annually based on safety reports for needed changes that may be systemic.
- Include in training sessions scenarios based on reported safety issues.

The continued maturity of your safety culture is critical to future success. Cultures are not really created or implemented; they emerge over time because of experience. They are the product of the values and actions of the organization's leadership as well as the results of organizational learning. For an organization to be in alignment and achieve a positive level of safety culture (and SMS success), all members of the system are mutually obligated to be accountable for their choices. Organizations with leading safety cultures view safety as a core value, not as a priority that can be ranked along with other competing objectives such as production and costs.

Much like the importance of senior leadership's role in facilitating a just culture discussed in Tier Two, Competency No. 4, senior leadership must also support the other areas of a safety culture. By continuing with Dr. James Reason's safety culture model, organizations can fully understand what they need to address. Focusing on informed culture, reporting culture, learning culture, and flexibility culture enables a more robust organizational culture.

Informed Culture. Those who manage and operate the system have current knowledge about the human, technical, organizational, and environmental factors that determine the safety of the system as a whole.

Reporting Culture. People are willing to report errors and near misses.

Just Culture. People feel safe to report safety-related information without fear of reprisal (see Tier Two, Competency No. 4, for more on just culture).

Learning Culture. People have the willingness and competence to draw the right conclusions from their safety information system and the will to implement major reforms when the need is indicated.

Flexibility Culture. Organizational flexibility is typically characterized as shifting from the conventional hierarchical structure to a flatter professional structure.

<p>Informed Culture</p>	<p>Those who manage and operate the system have current knowledge about the human, technical organizational, and environmental factors that determine the safety of the system as a whole.</p>
<p>Reporting Culture</p>	<p>An organizational climate in which people are prepared to report safety lapses and potential safety hazards.</p>
<p>Just Culture</p>	<p>An atmosphere of trust in which people are encouraged (even rewarded) for providing essential safety-related information, but in which they are also clear about where the line must be drawn between acceptable and unacceptable behavior.</p>
<p>Learning Culture</p>	<p>An organization must possess the willingness and the competence to draw the right conclusions from its safety information system and the will to address problems identified through the reporting culture, and possibly implement major reforms.</p>
<p>Flexibility Culture</p>	<p>A culture in which an organization is able to reconfigure themselves in the face of high tempo operations or certain kinds of hazards - often shifting from the conventional hierarchical mode to a flatter mode.</p>

Safety Culture Summary

Source: Dr. James Reason

Trust and transparency are essential components of a positive safety culture. If individuals trust that the organization has their best interests in mind, performance and compliance are likely to be much higher than if the individuals believe that the organization is serving only its own best interests (a.k.a. the bottom line). When individuals can see how problems are being resolved and can actively participate in those activities, organizations can increase positive attitudes and engagement.

Safety culture is also a synthesis of values, standards, morals, and norms of acceptable behavior. These are aimed at maintaining a self-disciplined approach to the enhancement of safety beyond legislative and regulatory requirements. Therefore, safety culture must be inherent in the thoughts and actions of every individual at every level in an organization. Ultimately, the active involvement of executive management is essential for establishing and maintaining a solid safety culture. One's perception of safety may be rooted in how a person perceives the manager/supervisor who dictates safety procedures to them. Major safety improvements are possible only if all of senior leadership drives the improvements down from the top. SMS emphasizes that the company CEO, not the safety manager or quality director, is the accountable manager for safety.

An organization with an effective safety culture relies on the close interdependence between technical safety and organizational processes. In practice, a high level of safety culture means that the systematic organization and implementation of activities are focused on creating high-quality technical, human, and organizational systems. A healthy safety culture actively seeks improvements, vigilantly remains aware of hazards, and uses systems and tools for continuous monitoring, analysis, and improvement.

TIER THREE | Competency No. 3

UNDERSTANDING CHANGE MANAGEMENT AND CONTINUOUS IMPROVEMENT

GOAL

Understand the importance of change management and continuous improvement as a function of effectively managing inherent risks.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Recognize changes and adapt policies and procedures to manage the associated risks. Use employee communications, trend analysis, tone of safety culture, and investigation of unwanted events as tools to continuously improve.

TIPS

- Sometimes it is hard to recognize change management events. Here are a few examples:
 - When a new position is created
 - When a new person is hired at a management or director level
 - When something new is introduced into your system, with new risk exposures (be sure you incorporate risk-management elements into the new risk exposure)
 - When a backup aircraft being used is a different model from the regular aircraft.
- You can always be doing better. Look at areas where you experience frustration and see what you can do to improve.

1. Change Management

Change is an event, an external shift when something is new: things are not the way they were before. You are doing something else or doing something in a different way. Change management is an approach to transitioning individuals, teams, and organizations to a desired future state while managing risks in real time.

As organizations make operational transitions, it may affect the effectiveness of existing safety risk controls. In addition, when change occurs, new hazards and related safety risks may be inadvertently introduced into an operation. The power of preparation is important. Recognizing and managing the transition process while the change is implemented (even temporary change) will result in the identification of operational risks. Anticipating risks allows organizations to implement controls to ensure safe operations throughout the transition process.

The leadership team must understand:

- Change management is a proactive method to control outcomes (manage risks and reduce the consequences of unwanted outcomes).
- Management must identify predicted hazards associated with the change and mitigate risks before change implementation or incorporate them within change implementation.
- Management must accept predicted residual risk before change implementation.

Not all change management involves permanent changes.

- Temporary changes cause the most problems because we do not properly plan for them.
- Special events, natural or man-made disasters, and critical incidents are inevitable in our business.
- Even slight departures from normal operations can allow disaster to sneak in.

An example of a change management process flow:

- Identify the reason for the change
- Recognize the desired result of the change
- Identify potential hazards and associated risks
- Identify and implement necessary risk controls (e.g., cost vs benefit analysis)
- Define the plan of action
- Document the change, the risks, and the risk controls
- Communicate the entire plan to all affected employees.

2. Continuous Improvement

Continuous improvement is a process designed to ensure that you are correcting substandard safety performance identified during a variety of system assessments and through employee communications. Organizations dedicated to continuous improvement recognize the importance of these actions for strengthening the quality of a service/product, improving customer satisfaction, or engaging with the workforce, thereby improving efficiency, productivity, and profits.

Any number of policies/procedures/practices within every organization would benefit from some level of improvement and not just those related to safety. It is imperative for leadership to regard organizational deficiencies as opportunities instead of painful reminders or just another thing on their to-do list. Near-miss events are ideal candidates for focusing organizational efforts on improvement. These should be considered priorities since injury or damage were luckily avoided.

Leadership teams should be tasked with moving the organization beyond mere regulatory compliance. Compliance does not equate to an engaged workforce. An engaged workforce takes organizational safety to a new level and makes continuous improvement part of the daily operational process. This type of culture takes organizations to a new level of safety and helps to shape new industry best practices.

Just as a subtle reminder, to get to this level of safety culture, your organization's just culture must be an organizational priority. If employees have organizational trust to report things that they see and hear without fear of reprisal, it serves as the backbone of safety culture growth and continuous improvement. It is important to get the small things right to build a solid foundation for continuous improvement in all facets of an organization.

TIER THREE | Competency No. 4 MAINTAINING A FORMAL TRAINING PROGRAM

GOAL

To establish a formal training program, incorporate training as a priority into your organization and conduct training regularly.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Ability to consistently manage a training plan. Ability to effectively schedule training and maintain training records/data.

TIPS

- A formalized approach to training-records management includes regulatory and internal requirements in a planned schedule, taking into consideration frequency and documentation of completion of all training.
- Create scenarios for routine training that identify areas where you might be at risk in your operation. Identify scenarios using internal and external data to increase proficiency in your area of operation including night operations, mountainous terrain, and IFR.

Consistent and reliable training works – simulation has proven that, but it is important to remember that training is also perishable. The completion of this competency should include the training requirements to maintain proficiency (for you as an individual or for the organization), frequency of training, a training record-keeping process, and a training scheduling system.

A formal training program may include proficiency in all areas of your operation including ground support equipment, specialty equipment (floats, autopilot, etc.), avionics, and electronic flight bag. Internal instructors need to be formally trained in all areas that they instruct as well as in how to instruct.

Training to improve personal performance. The following are courses that are not necessarily aviation specific but will help improve overall performance. There are many resources that may even offer these courses free of charge.

- Training on human performance – why errors are predictive and occur multiple times every day
- Training on human factors like fatigue, dehydration, spatial disorientation, and confirmation bias
- Training on emotional intelligence
- Training on effective communication.

RECOMMENDATIONS FOR A TRAINING PROGRAM

1. Understand and Identify What Training Resources Are Available to You/Your Organization

a. Aircraft-specific

- Aircraft manufacturers provide many training resources in aircraft-specific, powerplant-specific and some technology-specific courses. These are often included with the purchase of new aircraft. This training is available for purchase for all others.
- Training providers are companies that provide aircraft-specific courses and type ratings. Many have simulation and offer regulatory-approved courses.

- Computer-based training is available from many sources. It can include ground school on many aircraft models as well as human factors and safety courses.

b. Simulation

- Simulation is available from training providers and OEMS. It may also be available from local operators that have purchased simulators and are willing to share the resource.
- Simulators can be used to practice scenario-based training on normal and emergency procedures when the simulator is the same model as your aircraft.
- Simulators that are generic or a different model of your aircraft can be used to practice IFR or IIMC scenarios.

2. Track When Credentials Expire per Regulatory Requirements

- a. IFR pilot
- b. IA mechanic
- c. Operation-specific pilot/mechanic.

3. Establish a Regular Schedule for Training – Set Aside Time

- a. Training at training providers and OEMS needs to be scheduled in advance.
- b. When using outside instructors or examiners, schedule in advance.
- c. IA (inspection authorization) mechanic courses are often available through seminars and association training resources. A schedule is usually available.
- d. Operation-specific training is often available through industry associations or accreditation sources and can be accessed online or at industry events.

TIER THREE | Competency No. 5

IDENTIFYING DESIGNATED SAFETY PERSONNEL

GOAL

Identify a designated safety position within your organization to set the tone for safety culture and process on a consistent basis.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Ability to identify personnel dedicated to safety and process improvement within your organization. Identify roles and responsibilities of dedicated safety personnel.

TIPS

- Dedicated safety personnel can provide a close look at internal operations while reviewing external resources and recommendations.
- A dedicated safety person should be focused on the functionality of the safety management system within the organization; that individual is not typically involved in daily operational challenges, personnel issues etc.
- Establish a volunteer or paid group of employees to represent a region or geographical area to ensure safety messages are consistent within the organization.

As your organization matures and grows in size and complexity, having a specific individual designated to manage your safety process will be integral to creating success. This will help you to control risk exposures more effectively and continually improve.

This position often is also tasked with setting the tone for the safety culture throughout the organization, an especially challenging assignment if your organization has many locations.

Ensuring that the safety program fits all aspects of the organization and that reporting is standardized is no simple task. Dedicating staff to focus on these details can be essential in helping to facilitate process changes.

While it should be the responsibility of the process owners (department heads) to manage safety within their company subgroup (e.g., operations or maintenance), designated safety personnel can be impactful helping to facilitate risk management with those leaders. The assistance that safety personnel provide can enable those leaders to be more engaged with safety issues while allowing them to continue with their daily management activities in the department.

It is important to remember that individuals with assigned safety responsibilities need to have direct access to the accountable executive to ensure an open exchange of information and awareness to help leadership understand the organization's risk-management performance. In addition, these designated safety individuals should receive relevant training to adequately support them in this role.

TIER THREE | Competency No. 6 IMPLEMENTING A SAFETY MANAGEMENT SYSTEM (SMS)

GOAL

To implement a safety management system (SMS) that is unique to your operation.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Build a unique safety management system developed from the competencies described in Tiers One and Two. Recognize the unique applications to your operation and/or gaps needed to complete a formal SMS.

TIPS

- Tiers One and Two of this VAI Framework for Safety have provided you with the structure and tools to build a formal SMS that is uniquely tailored to your organization.
- Your organization's SMS should be tailored to match unique characteristics of your safety culture and related safety programs and safety promotion.
- Consider creating a quarterly report on the functionality of your SMS. This will allow all members of your organization to see how well the SMS is being implemented within the organization and can help you manage risks and reveal trends before they become unwanted events.

The full implementation of a safety management system can have a profound and long-term impact on the performance of your organization. The foundational competencies that you established in Tiers One and Two have provided you with the necessary attributes to reach this point of implementing an SMS at your organization.

You and your company are simply formalizing all the different elements you are already accomplishing for risk management into a well-organized and documented process. In general, industry SMS models use the common structure of 4 components and 12 elements. How your organization carries out each of these components and elements is unique to your organization.

Definition of a Safety Management System (SMS)

SMS is the formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of safety risk controls. It includes systematic procedures, practices, and policies for the management of safety risk.

Source: FAA

The scope of SMS primarily addresses the aviation activities of your organization for the safe operation of your aircraft. However, this scope also indirectly includes numerous other activities that support this safe operation such as finance, human resources, legal, use of contractors, part suppliers, etc. It is important to involve all these stakeholders who have a potential impact on the organization's safety performance (see Understanding System Operations, Tier Two, Competency 5). SMS implementation also considers the uniqueness and complexity of your lines of business or company purpose. Whether you have a single-aircraft charter business or a multifaceted operation involving numerous aircraft and different mission profiles, the SMS components and elements should be scaled to appropriately support your risk-management performance while also not making it overly complicated.

SMS Component 1 Safety Policy and Objectives	SMS Component 3 Safety Assurance
<ul style="list-style-type: none"> • Management Commitment & Responsibility • Safety Accountabilities • Appointment of Safety Personnel • Coordination of Emergency Response Plan (ERP) • SMS Documentation & Record Keeping 	<ul style="list-style-type: none"> • Safety Performance Monitoring & Measurement • The Management of Change • Continuous Improvement of the SMS
SMS Component 2 Safety Risk Management	SMS Component 4 Safety Promotion
<ul style="list-style-type: none"> • Hazard Identification • Safety Risk Assessment & Mitigation 	<ul style="list-style-type: none"> • Training & Education • Safety Communication

SMS Components and Elements

Source: ICAO

The following provides an outline of each of the essential pieces of an SMS with a cross-reference to the tier where the SMS concept was first introduced.

SMS Component 1: Safety Policy & Objectives

By establishing safety policy and objectives, management can assign responsibilities and set standards for the organization while also conveying its commitment to safety performance.

Element 1.1: Management Commitment & Responsibility – As part of your organizational safety policy, there must be a written statement about management commitment to financial and organizational resources to support an SMS. Who in your organization can commit financial resources to support an SMS?

- Tier One – Competency 2 ([Having a Safety Mindset](#))
- Tier One – Competency 3 ([Setting Personal Limits](#))
- Tier Two – Competency 1 ([Defining Safety Responsibilities and Accountabilities](#))
- Tier Two – Competency 4 ([Incorporating Just Culture](#))

Element 1.2: Safety Accountabilities – Defining responsibilities for safety at all levels of the organization involves identifying hazards and errors as well as ensuring appropriate corrective actions are taken to mitigate the risks.

- Tier One – Competency 1 ([Practicing Self-Care](#))
- Tier One – Competency 2 ([Having a Safety Mindset](#))
- Tier Two – Competency 1 ([Defining Safety Responsibilities and Accountabilities](#))

Element 1.3: Appointment of Safety Personnel – Identifying a qualified safety representative(s) within an organization will help to better facilitate the implementation and sustainment of the SMS.

- Tier Three – Competency 5 ([Identifying Designated Safety Personnel](#))

Element 1.4: Coordination of Emergency Response Plan (ERP) – The purpose of the ERP is to help organizations better prepare for a crisis scenario by identifying the necessary actions and the delegation of responsibilities. This helps to save lives and enables continued operations and a return to normal conditions as soon as possible.

- Tier One – Competency 5 ([Preparing for an Emergency](#))
- Tier Two – Competency 7 ([Having an Emergency Response Plan](#))

Element 1.5: SMS Documentation & Record Keeping – Formal documentation is required to provide the authoritative basis of the SMS. It helps the organization hold itself more accountable for its safety processes, goals, and objectives. Also, it is used to clarify the relationship between safety management and the other functions of the organization: the way in which safety management activities integrate with those other functions and how these activities link to the organization’s safety policy.

- Tier Two – Competency 4 ([Incorporating Just Culture](#))
- Tier Three – Competency 6 ([Implementing a Safety Management System \[SMS\]](#))

SMS Component 2: Safety Risk Management

The objective of a safety risk management process should be to assure that any safety risk is identified, evaluated, documented, and eliminated or controlled within the process.

Element 2.1: Hazard Identification – The first step is to identify all hazards within your operation.

- Tier One – Competency 3 ([Setting Personal Limits](#))
- Tier One – Competency 4 ([Prioritizing Your Activities](#))
- Tier Two – Competency 2 ([Identifying, Understanding, and Controlling Risks](#))

Element 2.2 Safety Risk Assessment & Mitigation – The next step is to evaluate those hazards and determine what safety defenses you have in place to control the risk for each hazard identified.

- Tier One – Competency 2 ([Having a Safety Mindset](#))
- Tier One – Competency 4 ([Prioritizing Your Activities](#))
- Tier Two – Competency 2 ([Identifying, Understanding, and Controlling Risks](#))

SMS Component 3: Safety Assurance

This provides your organization with the feedback to know whether your SMS is effective and achieving your objectives for reducing the impact of hazards.

Element 3.1 Safety Performance Monitoring & Measurement – There must be a means for collecting information about what is occurring in your workplace as well as defining performance indicators/targets based upon the analysis of the data collected.

- Tier One – Competency 6 ([Seeking Feedback](#))
- Tier Two – Competency 5 ([Understanding System Operations](#))
- Tier Three – Competency 1 ([Measuring Performance](#))
- Tier Four – Competency 2 ([Participating in External Assessments](#))

Element 3.2 The Management of Change – A process that identifies how the level of risk is affected by a particular change that occurs within the organization. This involves the assessment of current risk mitigation strategies and the potential for new hazards to be inadvertently introduced into the system.

- Tier Three – Competency 3 ([Understanding Change Management and Continuous Improvement](#))

Element 3.3 Continuous Improvement of the SMS – An element of monitoring designed to enhance process and procedures. Organizations must seek out areas of deficiencies in order to close the gaps and latent factors. Safety is never finished, and all employees must continually find ways to improve.

- Tier Three – Competency 2 ([Maturing the Safety Culture](#))
- Tier Three – Competency 3 ([Understanding Change Management and Continuous Improvement](#))
- Tier Four – Competency 3 ([Establishing Safety Mastery](#))

SMS Component 4: Safety Promotion

This is designed to ensure that your employees are knowledgeable and informed about their responsibilities as well as familiar with hazard exposures and risk controls. It also has a significant impact on producing a positive safety culture by creating an environment of transparency, communication, and engagement.

Element 4.1 Training & Education – Establishing a formal training program that creates technical competency and safety awareness that is appropriate for the roles of every employee.

- Tier Two – Competency 3 ([Using Training to Maintain and Improve Proficiency](#))
- Tier Three – Competency 4 ([Maintaining a Formal Training Program](#))

Element 4.2 Safety Communication – The organization must effectively communicate to everyone within their system to ensure that all safety information is conveyed and recognized. Various methods of communication should be used to ensure the information is provided in a timely manner and easily understood.

- Tier Two – Competency 6 ([Practicing Effective Communication](#))
- Tier Four – Competency 4 ([Achieving Mentorship Status](#))

SMS TIER FOUR FRAMEWORK

The Tier Four framework is designed not only to mature a vertical flight operation, but also to enhance safety in our industry by taking a proactive role through mentoring. As we know, safety efforts are inherently a continuous improvement process. Safety programs are never finished but rather must adjust accordingly with conditions, compliance directives, and changes in technology. Highly reliable organizations have developed safety defenses within their operations to ensure safety is an imperative and woven through each task and each written policy. This methodology helps them manage risk effectively and greatly reduce the consequences of unwanted events related to human or system errors.

The objective of this tier is to provide techniques to enable organizations to share their fully developed safety programs with organizations that are just starting or do not have sufficient resources. This mentoring process will help to improve safety operations and risk management best practices for the broader vertical aviation community.

Tier Four includes four (4) competencies that comprise the minimum standard of engagement that an organization must do/demonstrate in order to achieve Tier Four VAI Framework of Safety recognition.

Tier Two Competencies
1. Having an Engaged Safety Management System (SMS)
2. Participating in External Assessments
3. Establishing Safety Mastery
4. Achieving Mentorship Status

TIER FOUR | Competency No. 1 HAVING AN ENGAGED SMS

GOAL

To have a fully implemented safety management system (SMS) that continues to mature and enhance.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Demonstrate that the safety management system is constantly evolving to meet the challenges of the operation and industry and unique to your organization. The SMS should be recognized as compliant with your civil aviation authority or other recognized accreditation program.

TIPS

- Find new ways to engage with the employees at your organization. Ask them their “WHY” – why do they choose safety?
- Remind employees through safety messages that they are building the safety culture with every action that they take.

Exercise: Hold a contest inviting children to submit a drawing showing helicopter safety tips, with the prizes being the winners’ pictures appearing in the company’s promotional calendar. (You can even do this electronically at no cost!)

What exactly is the meaning of being *engaged*? One way an engaged SMS can be illustrated is comparing compliance and engagement. *Compliance* means “checking the box”: I did the task by the book, I followed the checklist, etc. *Engaged* means “willing compliance, but with an extra level of attention.”

Example: A walk-around before a flight

Compliance – A compliance-driven walk-around may be described as a pilot noting, “I completed the walk-around of the aircraft. I looked for obstacles, FOD, and didn’t find anything, and got into the aircraft.”

Engaged – An engaged-driven walk-around may be described as a pilot noting, “I approached the aircraft and placed my equipment into the aircraft before I started the walk-around. I was mindful in the moment and remember every aspect of the walk-around. I touched the latches on doors and compartments to ensure that they were secure. I specifically looked for tie-downs, FOD, ladders, or anything else that may be too close to the aircraft that could impact takeoff. After my 360 walk-around was complete, I entered the aircraft and stated out loud to the crew, ‘Walk-around complete.’ ”

This may seem to be an easy competency—to have an engaged SMS. However, the point is that your safety management system should be fully tailored to your organization, and that involves everyone. SMS is not a one-size-fits-all solution, nor is it a book that lives on a shelf. Your organization’s SMS should be unique, just as your organization is unique, and the SMS must evolve along with your organization—in lock step. Focus on what your business specializes in and know that you are continuing to manage the risks to the best of your ability.

Vertical flight operations are not static; they are dynamic in nature, and as a result, their processes and their technology involve change. Ensure that your organization's SMS keeps up with your operations and that all the following are continually improved. Attending to your processes and the system will not only help to assure operational effectiveness, but it will also improve the people involved. An engaged SMS can be reviewed and updated as necessary. That review might be once or twice a year. Employees are engaged because of the company's strong safety culture and the just culture built on a framework of trust. Employee observations and suggestions are effectively communicated and are highly respected and encouraged. No one is afraid to report a safety issue that may interrupt or cancel a flight.

Depending on what type of accreditation your organization participates in, some of the third-party auditors may go to field locations to see whether employees are actually doing what the main office is telling the auditors is taking place. If employees are walking the talk, that is a great indicator that you have an engaged SMS.

Organizations with an engaged SMS can better control the risks generated as the organizations evolve and minimize complacency issues that might creep in. The following paragraphs illustrate common situations that may challenge an SMS that is not fully engaged.

1. Evolving Organizations

Organizations are continually evolving. There may be additions of new positions, new locations, movement of operations regionally/locally, or reductions in force. The organization's safety management system (SMS) must be designed to absorb these changes with no threat to overall safety of the operation. This is essentially the main function of your SMS. However, some organizations may ignore cumbersome requirements like change management because of the documentation involved. Highly reliable organizations have proven controls in place to manage risks generated from changes in the system.

A system where dynamic inputs create constant outcomes can induce a potentially dangerous form of organizational blindness. Employee engagement programs and solid employee communications can help to reduce organizational blindness.

As your organization evolves, consider the possible loss of knowledge and skill sets when employees leave your organization. It is also important to consider hiring people who share the same values and beliefs that your safety culture has established, to ensure alignment with your organization's goals and objectives.

2. Barriers to Complacency

Complacency can be described as a feeling of self-satisfaction accompanied by a loss of awareness of potential dangers. Complacency often arises when people are conducting routine activities that have become habitual and may be considered easy and safe. Things like workarounds become the norm, and no one really knows what the written policy says.

A general relaxation of vigilance results, and important signals can be missed, with the individual seeing only what he or she expects to see. It's also important to be aware that complacency can occur following a highly intense activity such as recovering from a major incident (that collective sigh of relief or "glad that it's done" statement). You will need to focus on maintaining the same levels of safety throughout all types of operational tempos. Think back to Tier One, Competency

No. 3, where we discussed Self-Check, Peer Check, Trust but Verify, and Having a Questioning Attitude—these are great tools to help avoid complacency.

In addition, it is extremely important not to rest on your laurels. If your organization has an excellent safety record, remember: that is a lagging indicator. What you do today is going to keep you safe today. Take the time to do the checklist. Make sure you are mindful in the moment when working on a critical task.

Lastly, organizations must engage all aspects of their business in risk management. Simply focusing on only the flight component of the operation is not taking a comprehensive approach toward managing the risks that can affect your entire business. Do not ignore how personnel with an overlap in responsibilities can transfer risk to other areas of the business. Also, do not think that risks will not exist in nonflight-related businesses—hazards can present themselves anywhere and at any time. The application of SMS in any type of business can promote successful performance.

TIER FOUR | Competency No. 2

PARTICIPATING IN EXTERNAL ASSESSMENTS

GOAL

Participation in an external assessment auditing process to identify successes, gaps, and vulnerabilities.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Explain the findings (good and unwanted) reported by an external organization surveying your safety program and processes. Explain the assessment process for determining priorities of corrective action (if any). Provide a summary of lessons learned from the third-party audit that could be useful to a new or small operator.

TIPS

- Third-party audits or assessments are one solution to identify successes, gaps, and vulnerabilities.
- Using a company representative from another location can also serve as an external evaluation because the person conducting the audit is new to your location.
- Documenting the follow-up to the findings of a third-party audit to show what is working well and what needs more attention is a significant component of taking a mentoring role.
- Small organizations could ask a colleague or friend to review their processes to get an outside perspective.

Participation in third-party audits (also known as external assessments) is an effective means for identifying gaps in your processes or opportunities for improvement that your organization's employees may not see. Until your organization brings in an independent evaluator, there may always be situations to miss key gaps. It is essential to ensure that these outside auditors have the necessary resources and meet with the appropriate personnel for a successful evaluation of all your safety processes. Operators need to devote time to this process to enable the most productive results. Some auditors may visit field locations outside of the main corporate environment to check whether employees are performing and participating in the SMS as the corporate executive staff imagines they are.

Benefits of External Evaluations

- Third-party auditors provide additional technical expertise to the project team that might not currently exist.
- An outside organization provides credibility and objectivity by acting as an external "critical friend."
- Third-party reviews enhance the likelihood that the initiative's goals and objectives are achieved.
- By taking responsibility for some or all of the evaluation tasks, third-party evaluators allow your staff to focus on project implementation.

External assessments are useful to organizations because they have no predetermined bias. The auditors are objectively reporting what they see and hear. Sometimes the data from internal audits can become unintentionally confused.

Example: As a manager, if you are performing the audit for the location that you manage, you have the authority to direct staff to fix any deficiency uncovered during the audit on the spot. With the corrective action taken, you no longer need to record the deficiency, ... right? WRONG! By not documenting the issue: you are losing the opportunity to record a gap (and its remedy), your compliance data may be affected, or a training deficiency may be missed. This type of solution has the potential to allow the faulted condition to return to the way it was found. Fixing a problem immediately has low staying power because no lasting changes of habit were made.

Typically, at the conclusion of an external assessment, an out brief will occur that highlights the findings. For any gaps that are identified, a corrective action plan (CAP) is most often used to document and track how the issues will be fixed. The elements of a CAP will specify the particular item that needs to be corrected, who is responsible for ensuring it is completed, and the date it will be done. These are useful because the CAP helps ensure accountability for the implementation of the improved process/change. It also includes follow-up and/or a review system that evaluates the effectiveness of the corrective actions.

TIER FOUR | Competency No. 3 ESTABLISHING SAFETY MASTERY

GOAL

Establish a safety process that is recognized/acknowledged by industry as being highly effective.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Demonstrate through statistics that all elements of your organization's safety management system are effective. Share the elements that are working well (leading indicators) within your system to serve as a model program for other operators. Demonstrate that safety is not proprietary—share your successes with the vertical aviation industry to help get the industry's accident rate to ZERO.

TIPS

- Show improvement by tracking employee engagements by year.
- Track your successes by year (leading indicators).
- Track your unwanted events by year (lagging indicators).
- Share your trends!

Safety mastery is not an end point; it is an attitude of continuous improvement. There are always opportunities for constant enhancements within dynamic vertical flight operations. Sometimes the smallest of changes can have the biggest impact.

To continually drive positive outcomes, organizations need to consider the concept of high reliability. Reliability often results from stable processes of cognition that help individuals and teams to develop a detailed understanding of a situation. High-reliability organizations are not immune to adverse events, but they have learned to convert these occasional setbacks into enhanced resilience of the system.

Five Principles of High-Reliability Organizations (HROs)

1. **Preoccupation with Failure.** HROs do not ignore any failure, no matter how small, because any deviation from the expected result can snowball into tragedy.
2. **Reluctance to Simplify.** HROs are complex by definition, and they accept and embrace that complexity. HROs do not explain away problems; instead, they conduct root cause analysis and reject simple diagnoses.
3. **Sensitivity to Operations.** Operations are what an organization does. In this sense, HROs treat them as hands-on experiences from which lessons about the organization can be taken to further improve function in real time.
4. **Commitment to Resiliency.** *Resilience* in HROs means the ability to anticipate trouble spots and improvise when the unexpected occurs. The organization must be able to identify errors that require correction while at the same time innovating solutions within a dynamic environment.
5. **Deference to Expertise.** The fact that an HRO must be open-minded rather than judgmental leads to the idea that the culture of the HRO defers to expertise. The "expert" involved is the person with hands-on knowledge of the operation at the point of a failure, not the expertise conferred by hierarchical authority.

TIER FOUR | Competency No. 4 ACHIEVING MENTORSHIP STATUS

GOAL

Participation in the VAI Mentoring program to help establish new safety minimums and overall safety goals for the vertical aviation industry.

KNOWLEDGE, SKILLS, AND ABILITIES (KSAs)

Identify and share the key elements of a strong safety culture, a strong just culture, and a strong safety process. Be able to clearly identify “what works” with others in the industry.

TIPS

- Sharing safety best practices is a valuable contribution to the entire industry.
- Mentoring can be provided to others through associations, working groups, and direct contact.
- Just like SMS, mentorship is a living process, you are never done improving.

Achieving Mentor status is the pinnacle of the VAI Framework for Safety. This is an opportunity for your organization, with its proven safety strategies, to help other operators (especially the smaller types) that may lack the resources to have a well-defined, fully staffed safety program. The mentoring role provides an important outlet for assistance to those operators still developing their own SMS when they are unsure how to implement certain elements. This type of engagement can result in higher success rates among operators and yield enhanced risk management.

Through helping one another, together we can raise the bar in safety and create safe work practices that become innate in the industry and in individual operations. This status is the paramount recognition identifying that your organization should serve as a model for others. VAI has separate guidance for this competency and will provide accordingly.

APPENDIXES

The following pages include appendixes include checklists tailored for each tier of the Foundational Framework for Safety. These pages may be used as-is or adapted to meet unique requirements.

Separate files are also available in the native application format to facilitate personalization.

Appendix A: Tier One Safety Framework – Quick-Start Template

TIER ONE SAFETY FRAMEWORK – QUICK-START TEMPLATE				
Emergency Contact (Phone/Text)				
Safety Mindset Statement				
Personal Minimums	Sleep	Hydration	Exercise	
	Flight (day)	Flight (night)	Proficiency	
	Current Weather		Forecast Weather for Next Hour	
Critical Tasks				
Define Critical Tasks (modify as desired)		Define Critical Tasks (modify as desired)		
<ol style="list-style-type: none"> 1. Task 1 (define) 2. Task 2 (define) 3. Task 3 (define) 4. Task 4 (define) 5. Task 5 (define) 6. Task 6 (define) 7. Task 7 (define) 		<ol style="list-style-type: none"> 1. Control 1 (define) 2. Control 2 (define) 3. Control 3 (define) 4. Self-Check 5. Peer Check 6. Trust but Verify 7. Questioning Attitude 		

Feedback	
Near Miss	
Task Debrief	
Flight Debrief	
Peer Review	
Mentor Review	
Lessons Learned	
1.	
2.	
3.	
4.	
5.	

Appendix B: Tier One Safety Framework – Competency Evaluation Checklist

HOW TO USE THE COMPETENCY EVALUATION CHECKLIST

Review the Tier One checklist below and answer the questions honestly. Each column of questions is highlighted with green, yellow, or red. Just like a common risk matrix, green is the goal as risk is minimized. If you find that you have a lot of the yellow or red columns checked, please take the time to reevaluate and make some small changes to minimize the risk in those areas.

The risk matrix for Tier One is intended to be used for single pilots, mechanics, students, or other small operations. This is a great checklist to use even if you are just going out to fly for fun one day.

TIER ONE COMPETENCY NO. 1: Practicing Self-Care						
1	<input type="checkbox"/>	I know the importance of being well rested. I make sleep a priority.	<input type="checkbox"/>	I don't make sleep a priority, but I seem to get enough sleep.	<input type="checkbox"/>	I sleep when I can, I have a hectic schedule, I do not make sleep a priority.
2	<input type="checkbox"/>	Proper hydration, diet and exercise are an integral part of my lifestyle. I find that exercise helps me manage stress and I drink at least 8 glasses of water a day.	<input type="checkbox"/>	I know I should eat a better diet and exercise more. I just don't have the time. I do try to drink multiple glasses of water throughout the day.	<input type="checkbox"/>	It sounds good, but I have not made hydration, diet and exercise a daily priority. Overall, I am pretty healthy.
3	<input type="checkbox"/>	I feel like I have a good support network to help with life stressors. I am aware that I can choose how to react to situations, and I can change my mindset to help reduce stress or exercise to get my mind off things.	<input type="checkbox"/>	I feel like generally I have a good handle on life stressors. I am not one to ask for help from my friends/family, but I have someone to talk to when I need help.	<input type="checkbox"/>	I am good at handling stress; I do not need any help. Never have, never will.
4	<input type="checkbox"/>	I practice mindfulness or being in the NOW. When I am doing a task such as an aircraft walkaround, I practice thinking about what I am seeing in the NOW to ensure that I am not distracted.	<input type="checkbox"/>	I sometimes practice mindfulness when I am working on a critical task but otherwise, I am on autopilot. I know my job and I don't need to think about every detail.	<input type="checkbox"/>	I am a good multitasker.
5	<input type="checkbox"/>	I do not fly or complete critical tasks if I am taking either over-the-counter medication or prescription medication that may alter my ability to function at 100%.	<input type="checkbox"/>	I am conscious about not flying or performing critical tasks when taking prescription medication but have not thought about over-the-counter medication.	<input type="checkbox"/>	I take medication but believe my skills are not affected.
TIER ONE COMPETENCY NO. 2: Having a Safety Mindset						
1	<input type="checkbox"/>	Each day begins with a safety statement such as "I am going home safe today with no injuries and no damage to the aircraft."	<input type="checkbox"/>	Safety is present in the back of my mind, but I do not take the time to make a safety goal or safety statement each day.	<input type="checkbox"/>	I feel like I operate safely, but sometimes there is not enough time and shortcuts are faster.
2	<input type="checkbox"/>	The safety goal is incorporated into each task no matter how simple, to ensure risks are managed in real time.	<input type="checkbox"/>	This has been left up to employees to define.	<input type="checkbox"/>	This concept has never been discussed.
3	<input type="checkbox"/>	Safety is a collaborative effort. Our organization uses the concepts of Self-Check, Peer Check, Trust but Verify, and a Questioning Attitude to trap errors in real time.	<input type="checkbox"/>	There have been some efforts to integrate safety into all our operations, but it is not complete.	<input type="checkbox"/>	This concept has not been introduced.

TIER ONE COMPETENCY NO. 3: Setting Personal Limits						
1	<input type="checkbox"/>	Limits of operation have clearly been defined and documented (e.g., sleep, ceiling, visibility, and weather minimums). I have made a conscious decision to NEVER deviate from these minimums.	<input type="checkbox"/>	My personal limits have been set but have not been documented (e.g., written down).	<input type="checkbox"/>	My limits change depending on the weather and how confident I feel.
2	<input type="checkbox"/>	I complete checkrides on a regular basis and am confident and proficient in my skills.	<input type="checkbox"/>	I complete checkrides per regulatory guidelines but not in the aircraft type or operation that I perform.	<input type="checkbox"/>	I do not participate in regular proficiency evaluations.
3	<input type="checkbox"/>	I track my training and proficiencies on a regular basis.	<input type="checkbox"/>	I track required training only.	<input type="checkbox"/>	I do not track any training events.
TIER ONE COMPETENCY NO. 4: Prioritizing Your Activities						
1	<input type="checkbox"/>	I have evaluated all my tasks for the operation today.	<input type="checkbox"/>	I have completed a preflight assessment only.	<input type="checkbox"/>	I have not evaluated the tasks for my operation.
2	<input type="checkbox"/>	I have identified risk factors and assessed the risks.	<input type="checkbox"/>	I have self-identified risks for this flight.	<input type="checkbox"/>	I have not identified risk factors.
3	<input type="checkbox"/>	I have completed a self-evaluation to determine my proficiency.	<input type="checkbox"/>	I have completed training on this operation.	<input type="checkbox"/>	I cannot determine my proficiency.
4	<input type="checkbox"/>	I have evaluated the industry risk factors on my operation.	<input type="checkbox"/>	I completed scenario-based training on my operation.	<input type="checkbox"/>	I have not evaluated industry risk factors
TIER ONE COMPETENCY NO. 5: Preparing for an Emergency						
1	<input type="checkbox"/>	There is a documented procedure for all emergencies (who to call) and a survival kit has been installed on each aircraft before flight.	<input type="checkbox"/>	I have an emergency plan, but it needs some work or needs to be updated.	<input type="checkbox"/>	There is no emergency plan.
2	<input type="checkbox"/>	I have reviewed the Emergency Action Plan and understand how to implement it.	<input type="checkbox"/>	I have reviewed the Emergency Action Plan.	<input type="checkbox"/>	I have not reviewed the plan recently and I am not sure of the procedure.
TIER ONE COMPETENCY NO. 6: Seeking Feedback						
1	<input type="checkbox"/>	I regularly provide feedback to continually update my safety process and protocols.	<input type="checkbox"/>	I provide feedback when a situation occurs.	<input type="checkbox"/>	I do not provide regular feedback.
2	<input type="checkbox"/>	I seek a mentor to answer questions and provide guidance.	<input type="checkbox"/>	I seek answers through internet search.	<input type="checkbox"/>	I hold questions for industry meetings or classes.

Appendix C: Tier Two Safety Framework – Competency Evaluation Checklist

HOW TO USE THE COMPETENCY EVALUATION CHECKLIST

Review the Tier Two checklist below and answer the questions honestly. Each column of questions is highlighted with green, yellow, or red. Just like a common risk matrix, green is the goal as risk is minimized. If you find that you have a lot of the yellow or red columns checked, please take the time to reevaluate and make some small changes to minimize the risk in those areas.

The risk matrix for Tier Two is intended to be used for single pilots, mechanics, students, or other small operations. This is a great checklist to have everyone in your smaller operation complete, as it will give you a snapshot picture of the overall safety culture of your organization.

TIER TWO COMPETENCY NO. 1: Defining Safety Responsibilities and Accountabilities						
Individual Safety Responsibilities and Accountabilities						
1	<input type="checkbox"/>	I know the importance of the power of preparation and how it can affect decision-making. I ALWAYS come to work well rested and well hydrated.	<input type="checkbox"/>	I feel like I arrive at work prepared. Sometimes I don't get enough sleep, but doesn't that apply to all of us?	<input type="checkbox"/>	I feel like I am a pretty organized person. I am not seeing the connection between sleep, hydration, and decision-making skills.
2	<input type="checkbox"/>	I am a believer in mindfulness, and I practice regularly. It is a state of mind—when I am doing the walk-around I AM PRESENT—I'm not thinking about anything else but what I'm seeing on the walk-around.	<input type="checkbox"/>	I understand the power of being mindful in the moment; however, I am not perfect at the practice. I have repeated critical tasks to ensure they are done correctly.	<input type="checkbox"/>	It sounds good, but I have a lot going on and I am always thinking 3 steps ahead. That is what makes me great at my job.
Organizational Safety Responsibilities and Accountabilities						
3	<input type="checkbox"/>	Safety is an underlying factor in everything we do in our business. We have a “see something say something” policy, and all levels of management support that.	<input type="checkbox"/>	I feel like generally I have a good handle on life stressors. I am not one to ask for help from my friends/family, but I have someone to talk to when I need help.	<input type="checkbox"/>	I am good at handling stress; I do not need any help. Never have, never will.
4	<input type="checkbox"/>	Our organization has an amazing mitigation process for managing distractions/interruptions.	<input type="checkbox"/>	We try to manage distractions, but we are interrupted frequently.	<input type="checkbox"/>	I am interrupted constantly with NEW emergencies that need to be addressed. I cannot imagine what a day would look like with no distractors/interruptions.
5	<input type="checkbox"/>	We have written, clearly defined safety roles and responsibilities for each member of our organization.	<input type="checkbox"/>	We have written guidelines, but it is not written down to the detail of by position. We don't have the time to do that.	<input type="checkbox"/>	Why do we need to write safety responsibilities down for each position? Everybody already knows what to do.
6	<input type="checkbox"/>	Our organization has identified and published limits that we need to abide by such as weather-related minimums and flight limits with regard to familiarity with the region and night flying.	<input type="checkbox"/>	We do not have organizational limits; we leave it up to the person to decide their limits.	<input type="checkbox"/>	We are not sure about limits; we just need to get the job done.
TIER TWO COMPETENCY NO. 2: Identifying, Understanding, and Controlling Risks						
1	<input type="checkbox"/>	All hazards have been identified for all tasks within all positions. The hazard list is reviewed periodically to ensure we are operating within our organization's acceptable risk limits.	<input type="checkbox"/>	We have identified some hazards but not ALL hazards. It is impossible to list them ALL.	<input type="checkbox"/>	We have not listed all the hazards. People pretty much can recognize a hazard when they see one.
2	<input type="checkbox"/>	For each complex task, we take 5 minutes and map out the workflow so that we understand where the vulnerabilities may be in the process, and we control for those hazards before we start the task.	<input type="checkbox"/>	We are open to the idea of mapping out a workflow but have no idea where to start.	<input type="checkbox"/>	If we mapped out everything, we would never complete a task. There are simply not enough hours in the day to do this.

TIER TWO COMPETENCY NO. 1: Defining Safety Responsibilities and Accountabilities						
3	<input type="checkbox"/>	We use checklists regularly and find that they help trap human error.	<input type="checkbox"/>	We use checklists for new employees but once they get the task, we do not require continuous use.	<input type="checkbox"/>	We do not have time to create a checklist for everything.
TIER TWO COMPETENCY NO. 3: Using Training to Maintain and Improve Proficiency						
1	<input type="checkbox"/>	We have a formal training program that includes records management, planning to ensure training occurs, and a process for creating a lessons learned to educate our workforce about how to prevent unwanted events.	<input type="checkbox"/>	We have a basic training program, but it does not include all the elements described in this competency.	<input type="checkbox"/>	We do not have a formal training program.
TIER TWO COMPETENCY NO. 4: Incorporating Just Culture						
1	<input type="checkbox"/>	We have created a just culture model within our organization, and everyone in the organization understands what just culture is.	<input type="checkbox"/>	We have a just culture process, but no one really understands what that is.	<input type="checkbox"/>	No idea where to start.
TIER TWO COMPETENCY NO. 5: Understanding System Operations						
1	<input type="checkbox"/>	The organization knows its inputs and outputs.	<input type="checkbox"/>	Individuals have some idea of the organization's inputs and outputs.	<input type="checkbox"/>	We do not understand our inputs and outputs.
2	<input type="checkbox"/>	We know the different types of interactions within our organization.	<input type="checkbox"/>	There is awareness about interactions, but we do not understand the effects.	<input type="checkbox"/>	The organization is not aware of its internal interactions.
3	<input type="checkbox"/>	The organization understands and controls the outside influences on its performance.	<input type="checkbox"/>	We recognize that there are occasional impacts by outside entities, but we do not act to limit negative influences.	<input type="checkbox"/>	We are not aware of any outside influences.
TIER TWO COMPETENCY NO. 6: Practicing Effective Communication						
1	<input type="checkbox"/>	The organization regularly employs 3-way communications for all critical tasks. We have used it for so long, it has become a habit.	<input type="checkbox"/>	We have heard about 3-way communication but do not regularly practice it as a communication tool.	<input type="checkbox"/>	Never heard of 3-way communication.
2	<input type="checkbox"/>	The organization has regular communication with all employees.	<input type="checkbox"/>	The organization has good communication with all employees.	<input type="checkbox"/>	The organization does not have regular communications with staff.
3	<input type="checkbox"/>	Employees are clear how to report unwanted events, leading indicators, who to call for concerns and even how to report a concern anonymously.	<input type="checkbox"/>	Employees report concerns, but it is not very organized.	<input type="checkbox"/>	There is no mechanism for employee reporting.
TIER TWO COMPETENCY NO. 7: Having an Emergency Response Plan (ERP)						
1	<input type="checkbox"/>	Our company has a written emergency response plan, and we test (drill) at least once a year.	<input type="checkbox"/>	I think we have an emergency response plan, but not everybody has seen it and we have NEVER tested/drilled on the plan.	<input type="checkbox"/>	We do not have a formal emergency response plan.

Appendix D: Tier Three Safety Framework – Competency Evaluation Checklist

HOW TO USE THE COMPETENCY EVALUATION CHECKLIST

Review the Tier Three checklist below and answer the questions honestly. Each column of questions is highlighted with green, yellow, or red. Just like a common risk matrix, green is the goal as risk is minimized. If you find that you have a lot of the yellow or red columns checked, please take the time to reevaluate and make some small changes to minimize the risk in those areas.

The risk matrix for Tier Three is intended to be used by small, growing, and large operations. This is a great checklist to have everyone in your operation complete, as it will give you a snapshot picture of the overall safety culture of your organization. It is also a great tool for use by companies that may have recently merged, to identify and respond to risks because of the merger.

TIER THREE COMPETENCY NO. 1: Measuring Performance						
1	<input type="checkbox"/>	My organization makes it a priority to properly debrief each flight.	<input type="checkbox"/>	My organization does not debrief every flight, only those that may have involved a near miss.	<input type="checkbox"/>	My organization does not formally debrief any flights.
2	<input type="checkbox"/>	My organization has a process to conduct self-audits, document findings, and track corrections to all findings.	<input type="checkbox"/>	My organization does not have a formal process for self-audits. We do them, but no paperwork is generated.	<input type="checkbox"/>	My organization does not participate in self-audits.
3	<input type="checkbox"/>	My organization develops lessons learned training from both unwanted event reports and positive events' things that went right.	<input type="checkbox"/>	My organization does not have a formal lessons-learned program. However, we do discuss some unwanted events at the top executive level.	<input type="checkbox"/>	My organization tends not to report unwanted events to the line level.
4	<input type="checkbox"/>	My organization reviews ALL near misses and close calls.	<input type="checkbox"/>	My organization reviews some near misses and close calls.	<input type="checkbox"/>	I am not sure if my organization reviews near misses or close calls.
5	<input type="checkbox"/>	My organization has a rock-solid employee communication process. All employees' concerns are documented and responded to.	<input type="checkbox"/>	Employee communications happen through the management chain. Details likely get lost in translation.	<input type="checkbox"/>	My organization does not have a mechanism to track employee communications.
TIER THREE COMPETENCY NO. 2: Maturing the Safety Culture						
1	<input type="checkbox"/>	My organization has a process to review standard operating procedures annually and make necessary updates.	<input type="checkbox"/>	My organization reviews and updates standard operating procedures only when requested by a regulatory authority.	<input type="checkbox"/>	My organization does not typically review or update standard operating procedures.
2	<input type="checkbox"/>	My organization uses scenarios based on reported safety issues in training.	<input type="checkbox"/>	My organization uses industry-reported safety issue scenarios for training.	<input type="checkbox"/>	My organization does not use safety issue scenarios in training
3	<input type="checkbox"/>	My organization uses systems, tools, and employee communications for continuous monitoring, analysis, and investigation.	<input type="checkbox"/>	My organization sometimes uses systems, tools, and employee communications for continuous monitoring, analysis, and investigation.	<input type="checkbox"/>	My organization does not use systems, tools, or employee communications for continuous monitoring, analysis, and investigation.
4	<input type="checkbox"/>	My organization is focused on continuous improvement opportunities within every facet of our operation.	<input type="checkbox"/>	My organization recognizes the benefits of continuous improvement but has no formal process to track improvements.	<input type="checkbox"/>	My organization does not focus on continuous improvement opportunities.

TIER THREE COMPETENCY NO. 3: Understanding Change Management and Continuous Improvement						
1	<input type="checkbox"/>	My organization recognizes changes in personnel as potential risks and has a solid change management process to evaluate and control for newly introduced risks.	<input type="checkbox"/>	My organization has a change management section in the SMS, but we do not have a formal process to manage or track change management risks.	<input type="checkbox"/>	My organization has not identified risks associated with change management such as personnel changes.
2	<input type="checkbox"/>	My organization treats temporary system changes the same as permanent change and implements the change management process to evaluate and control all risks.	<input type="checkbox"/>	The risks associated with temporary changes are not communicated to the line level, although upper management discusses them.	<input type="checkbox"/>	My organization doesn't recognize temporary changes as risks. No mention is made to employees.
3	<input type="checkbox"/>	My organization is highly focused on continuous improvement. Every employee is engaged in safety and always making suggestions on how an activity can be improved to minimize risk.	<input type="checkbox"/>	Some elements of continuous improvement have been implemented, but often slowly. Management does not always want to hear employee suggestions or safety reports that they feel are unwarranted.	<input type="checkbox"/>	My organization is not formally focused on continuous improvement. We are just trying to stay in business.
TIER THREE COMPETENCY NO. 4: Maintaining a Formal Training Program						
1	<input type="checkbox"/>	My organization has a formal training records management system to verify all training records.	<input type="checkbox"/>	My organization manages records on a manual system using a spreadsheet software like MS EXCEL.	<input type="checkbox"/>	My organization does not have a records management system.
2	<input type="checkbox"/>	My organization has a formal system for scheduling training to maintain currency.	<input type="checkbox"/>	My organization conducts spot checks to ensure pilots are current in their training.	<input type="checkbox"/>	My organization is not proactive about scheduling training.
3	<input type="checkbox"/>	My organization uses scenarios in training that represent areas of risk for our operation.	<input type="checkbox"/>	My organization uses scenarios in training that represent areas of risk for industry.	<input type="checkbox"/>	My organization does not use scenarios in training that represent areas of risk for my operation.
4	<input type="checkbox"/>	My organization identifies training scenarios based on internal and external data	<input type="checkbox"/>	My organization identifies training scenarios based on external data only.	<input type="checkbox"/>	My organization does not identify training scenarios based on internal and external data
TIER THREE COMPETENCY NO. 5: Identifying Designated Safety Personnel						
1	<input type="checkbox"/>	My organization has a designated full-time safety position(s), and all personnel know who to contact for safety concerns, suggestions, etc.	<input type="checkbox"/>	My organization has an identified safety position; however, this position also has other operational responsibilities, and the focus is not 100% on safety.	<input type="checkbox"/>	There is no specific person designated to handle just safety issues.
TIER THREE COMPETENCY NO. 6: Implementing a Safety Management System (SMS)						
1	<input type="checkbox"/>	My organization has established an SMS as outlined in Tiers One and Two.	<input type="checkbox"/>	My organization has started our SMS as outlined in Tiers One and Two.	<input type="checkbox"/>	My organization has not started to build or write an SMS.
2	<input type="checkbox"/>	The unique applications for my operation are incorporated into our SMS.	<input type="checkbox"/>	My organization's SMS is a book on the shelf and does not address any of our unique safety programs	<input type="checkbox"/>	My organization does not have an SMS.

Appendix E: Tier Four Safety Framework – Competency Evaluation Checklist

HOW TO USE THE COMPETENCY EVALUATION CHECKLIST

Review the Tier Four checklist below and answer the questions honestly. Each column of questions is highlighted with green, yellow, or red. Just like a common risk matrix, green is the goal as risk is minimized. If you find that you have a lot of the yellow or red columns checked, please take the time to reevaluate and make some small changes to minimize the risk in those areas.

The risk matrix for Tier Four is intended to be used by small, growing, and large operations. This is a great checklist to have everyone in your operation complete, as it will give you a snapshot picture of the overall safety culture of your organization. Just like the Tier Three competency evaluation checklist, this is also a great tool for companies that may have recently merged to use to identify and respond to risks because of the merger.

TIER FOUR COMPETENCY NO. 1: Having an Engaged SMS						
1	<input type="checkbox"/>	My organization has a fully engaged SMS that is reviewed and updated at least once a year.	<input type="checkbox"/>	My organization has an SMS, but it is NOT regularly updated.	<input type="checkbox"/>	My organization does NOT have an SMS.
2	<input type="checkbox"/>	My organization's SMS is tailored to the operation.	<input type="checkbox"/>	My organization's SMS is NOT tailored to the operation.	<input type="checkbox"/>	My organization does NOT have an SMS.
3	<input type="checkbox"/>	My organization regularly engages employees in the SMS process.	<input type="checkbox"/>	My organization has an SMS but it does not incorporate employee suggestions for improvement.	<input type="checkbox"/>	Employees do not participate in the SMS process.
4	<input type="checkbox"/>	Safety policies and risk-management and safety culture processes are continually improved.	<input type="checkbox"/>	Some safety policies and risk-management and safety culture processes have been improved.	<input type="checkbox"/>	My organization's safety policy and risk-management and safety culture processes have never been changed.
5	<input type="checkbox"/>	My organization regularly promotes safety.	<input type="checkbox"/>	My organization does intermittent safety promotion.	<input type="checkbox"/>	My organization does not do any type of safety promotion.
TIER FOUR COMPETENCY NO. 2: Participating in External Assessments						
1	<input type="checkbox"/>	My organization regularly participates in an external auditing process.	<input type="checkbox"/>	My organization periodically participates in an external auditing process.	<input type="checkbox"/>	My organization does not participate in an external auditing process.
2	<input type="checkbox"/>	My organization regularly uses a company representative from another location to perform audits.	<input type="checkbox"/>	My organization infrequently uses a company representative from another location for audits.	<input type="checkbox"/>	My organization does not perform audits using company representatives from another location.
3	<input type="checkbox"/>	My organization documents findings from audits to identify trends and improvements needed.	<input type="checkbox"/>	My organization does not formally document findings from audits.	<input type="checkbox"/>	My organization does audits infrequently and files the audit forms with no action.
TIER FOUR COMPETENCY NO. 3: Establishing Safety Mastery						
1	<input type="checkbox"/>	My organization's safety process is recognized in the industry.	<input type="checkbox"/>	My organization has a solid safety process and is striving to be recognized in the industry.	<input type="checkbox"/>	My organization has a great safety program, but it is not a priority for industry recognition.
2	<input type="checkbox"/>	My organization tracks successes (leading indicators) to indicate trends.	<input type="checkbox"/>	My organization sometimes tracks successes (leading indicators) to indicate trends.	<input type="checkbox"/>	My organization does not track successes (leading indicators) to indicate trends.
3	<input type="checkbox"/>	My organization tracks unwanted events, makes improvements, and measures the efficacy of those implemented improvements.	<input type="checkbox"/>	My organization tracks unwanted events but does not provide any details on follow up to the organization.	<input type="checkbox"/>	My organization tracks only unwanted events that are compliance driven, such as recordable injuries.
TIER FOUR COMPETENCY NO. 4: Achieving Mentorship Status						
1	<input type="checkbox"/>	My organization participates in the VAI Mentoring program.	<input type="checkbox"/>	My organization is striving to participate in the VAI Mentoring program.	<input type="checkbox"/>	My organization is not qualified to participate in the VAI Mentoring program.
2	<input type="checkbox"/>	My organization shares its best practices with the industry.	<input type="checkbox"/>	My organization believes its best practices are proprietary.	<input type="checkbox"/>	My organization has not developed any industry best practices.



© 2024 Vertical Aviation International. All rights reserved.

Vertical Aviation International (VAI)
1920 Ballenger Avenue
Alexandria, VA 22314-2898
+1 703 683 4646

For information about VAI's safety management system programs and other safety resources, visit verticalavi.org/safety or contact Safety@verticalavi.org.