

HANDBOOK ON AVIATION SAFETY CULTURE





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FOREWORD

I am pleased to share with you the Aviation Safety Culture Handbook developed by the Civil Aviation Authority of Singapore (CAAS) and the Royal Netherlands Aerospace Centre (NLR) in close collaboration with industry partners.

This handbook is part of CAAS' continuing effort to support the fostering of a positive safety culture in our industry. It has been tailored to suit Singapore's operating context, drawing insights from the safety culture survey as well as subsequent focus group sessions with management and operational personnel from our industry.

As shown by the results of the safety culture survey, trust between management and operational personnel is foundational, and must be visibly supported by clear *commitment*. This handbook delves into these two key dimensions of safety culture, along with the dimensions of *awareness*, *communication* and *improvement*. It presents, in a series of DOs and DON'Ts, how management can play a key role in providing a psychologically safe and conducive environment for safety to flourish, and how individuals can take ownership of their actions and professionally conduct themselves with safety in mind.

The Aviation Safety Culture Handbook is the first-of-its-kind in our industry. I encourage you to leverage on the insights and best practices contained within, and hope that it will be a useful resource in your organisation's journey to enhance its safety culture.

Han Kok Juan
Director-General
Civil Aviation Authority of Singapore



1 | INTRODUCTION

"Aviation Safety is the responsibility of all organisations and individuals across all levels, and a culture which values and prioritises safety is essential to assure effective safety management and better aviation safety performance."

- from Charter for a Strong and Positive Safety Culture in Singapore

SAFETY IS CULTURE

Safety culture is a set of enduring values and attitudes regarding safety issues, shared among all members at every level of an organisation¹. It is an expression of how safety is perceived, valued and prioritised by management and employees², and is ultimately manifested in the behaviour of people.

A positive safety culture significantly influences how effectively aviation safety is managed. From the cockpit to the control tower to the aerodrome and hangar environments, every decision and action cumulates towards safe travel for air passengers. They impact the implementation of Safety Management Systems and safety improvement programmes. International aviation organisations, industry associations, civil aviation authorities and service providers all identify a positive safety culture as a necessary ingredient for aviation safety.

Aviation is subject to many uncontrollable externalities. These include climate change that affects the environment that our ground operations personnel work in, or manpower constraints as other industries compete for talent. Safety culture is a key pillar to support and strengthen aviation through such challenges.

Safety culture is not something that happens on its own. Within organisations, it is cultivated by people in their respective roles. Managers and supervisors committed to safety inspire their subordinates when they prioritise safety in their decision-making and actions. Employees who exhibit safe behaviour encourage their colleagues to put safety first. Safety mindsets take root as organisations continually seek to improve safety. A safety culture permeates from management to each employee within the organisation and to individuals throughout the entire industry.

Aviation safety has been built on compliance with rules, procedures, and processes, and enhanced through the implementation of safety management activities. Further safety improvement demands focused attention on people's mindsets, attitudes and behaviours. Every aviation professional needs to understand the safety risks in their daily environments and seek solutions to effectively sustain aviation safety.

¹Piers, M., Montijn, C., Balk, A. (2009). Safety culture framework for the ECAST SMS-WG. NLR - Royal Netherlands Aerospace Centre, Amsterdam.

²ICAO. (2018). Safety Management Manual, Doc 9859, fourth edition. International Civil Aviation Organization, Montreal.

ATTRIBUTES OF A POSITIVE SAFETY CULTURE

In an organisation that has a positive safety culture, safety is internalised as a core value of the organisation and is recognised as essential for the continuity of operations. In such a desired state, people and organisations:

- *commit* that safety is a key consideration in decision-making and is given due priority when faced with other competing pressures,
- *trust* in one another that safety is the motivation of their actions, and have a mutual understanding of acceptable behaviours,
- *communicate* actively through the reporting, alerting and sharing of safety information,
- are keenly *aware* of the safety risks that they are exposed to, and may be generating for others, and
- are driven to seek *improvement* in safety, recognising that safety is a continuous journey and not a destination.

WHAT THIS HANDBOOK IS ABOUT

For the development of this handbook, engagement sessions with key aviation stakeholders were conducted. The inputs underscored that effective implementation of safety culture requires technical competencies as well as people skills. Organisational structures, socio-cultural norms, communication styles and teamwork also have a significant effect on shaping mindsets, attitudes and behaviours. This means that each organisation has its own issues and challenges, which may require unique solutions.

Given that safety culture revolves around mindsets, attitudes and values, this handbook was not created as a step-by-step instructional manual. This handbook focuses on the perspectives from two main parties – management and operational personnel. This is to present a better understanding of the rationale and implications of the actions and decisions made in situations that affect safety.

Management refers to those in leadership, decision-making and supervisory roles. It is widely acknowledged that management plays a critical role in fostering a positive safety culture. Management's actions are a reflection of their mindsets and attitudes, and are manifested in the resources, procedures and processes of the organisation.

Operational personnel refers to employees and professionals such as flight and cabin crew, air traffic controllers, aerodrome operational personnel, maintenance engineers and technicians, and design engineers. Their actions have a profound impact on safe operations.

Chapter 2 presents the Singapore Aviation Safety Culture Framework, a structure to understand safety culture, build appropriate safety mindsets, and prioritise resources within each organisation. This framework was developed with reference to research papers, international practices, regulatory practices, safety culture assessments on aviation organisations and interviews with Singapore aviation stakeholders.

Subsequent chapters delve into each component of safety culture, also known as safety culture dimensions. Within each chapter, we explore the importance of and how each safety culture dimension manifests in an organisation. Anecdotes from the 2023 aviation safety culture survey are included to capture the sentiments related to particular aspects of the dimension. The chapter ends with an easy reference in the form of the Do's and Don'ts for managers and employees. Do's are suggested practices that can improve the maturity of that particular safety culture dimension. Managers should take note and evaluate if the suggestions would work within the organisation before implementation. Don'ts are intended as alerts that may hinder the progress of each safety culture dimension.

The handbook concludes with two case studies from actual events to prompt us to evaluate our organisation's safety culture and reflect on our own contribution.

This handbook is a product of extensive engagement with the aviation stakeholders in Singapore. It serves as a bridge between theory and practice and offers a comprehensive resource, providing insights and practices to assist our industry to develop useful strategies and initiatives that would foster and entrench a positive safety culture.





SINGAPORE AVIATION SAFETY CULTURE FRAMEWORK



SOCIO-CULTURAL FACTORS



The framework consists of five safety culture dimensions that shape safety behaviour and four socio-cultural factors that may influence each of the dimensions.

2 | SINGAPORE AVIATION SAFETY CULTURE FRAMEWORK

SAFETY CULTURE DIMENSIONS

The five safety culture dimensions express the key attributes of safety culture and serve as an indicator to measure the level of safety culture maturity.

- **COMMITMENT:** The extent to which a person or organisation adopts and demonstrates a positive attitude towards safety and recognises the importance of safety.
- **TRUST:** The extent to which a person or organisation trusts that the motivations and actions of others are in good faith, and with a view towards improving safety.
- **COMMUNICATION:** The extent to which information is shared with and disseminated within and across organisations so that people are engaged and informed about safety issues.
- **AWARENESS:** The extent to which a person or organisation is aware of the safety risks impacting themselves and others.
- **IMPROVEMENT:** The extent to which a person or organisation is willing to learn from past experiences, and from the experiences of others, and takes action to improve safety.

COMMITMENT forms the foundation for efforts to improve safety culture across all dimensions. When management and operational personnel are concerned about safety issues, safety becomes ingrained into the organisational culture. This commitment to safety enables improvement along the other dimensions.

Safety culture improvement initiatives hinge on a primary requirement: Commitment to safety.

TRUST is fundamental and necessary for creating a conducive environment where safety can flourish. When people have a clear understanding of acceptable and expected behaviours, and trust the system to manage behaviours consistently and fairly, people are more willing to share, hence communicate, openly.

Trust creates a conducive environment for safety to flourish.

COMMUNICATION is about keeping everybody on the same page with respect to safety. It is the deliberate effort to make known to all, the safety policies, expectations, roles and responsibilities, systems, procedures and operational risks that an organisation and its employees face. Timely access to relevant information enables the safety culture dimensions *Awareness* and *Improvement*.

Communication keeps people engaged in safety issues and mutually facilitates Awareness and Improvement.

AWARENESS of safety risks and the importance of safety may be enhanced with effective *Communication*, and training efforts. *Awareness* increases *Commitment* to safety, provided *Trust* is strong, and enables the ability to take risk mitigating actions. Therefore, while *Commitment* and *Communication* enhance *Awareness*, the reverse also applies.

Awareness is about being attuned to the safety risks around.

IMPROVEMENT is driven by a strong awareness of the importance of safety and the desire to implement enhancements arising from the lessons learnt. It requires adaptability of the organisation and its employees to change the way things are done.

Improvement involves learning about safety risks and implementing initiatives to minimise the risk of safety occurrences.

Though subsequent chapters delve into each safety culture dimension, bear in mind that the dimensions are closely linked and come together to play a part in shaping safety culture. Safety culture is the function of not just some, but all of the dimensions.

All safety culture dimensions inter-relate with each other in shaping behaviours.

SOCIO-CULTURAL FACTORS

Safety culture is influenced by the prevailing societal or corporate cultures. Pre-existing socio-cultural norms have a profound influence on safety culture. These norms are often a reflection of how an organisation works and the dynamics among various groups, such as management and operational personnel.

The composition of many Singapore organisations can be very varied, creating a myriad of different cultural practices. Different socio-cultural norms shape the behaviour of people and will indirectly impact the safety culture of the organisation.

Four socio-cultural factors have been identified to build awareness on the prevailing attitudes towards management practices. These socio-cultural factors describe the interactions

among people in a group setting. For instance, between management and operational personnel, or between different departments in an organisation.

While it is unlikely for an organisation to be on an extreme end of each socio-cultural factor, most organisations fall somewhere along the continuum. It is useful to understand the characteristics of both ends of each factor to better situate its influence in an organisation. These should be considered alongside the five safety culture dimensions, to develop strategies to foster a positive safety culture. An awareness of the cultural practices and norms allows organisations to constructively leverage on the dynamic interactions of various socio-cultural factors to entrench a positive safety culture.

Low power distance

Both subordinates and those-in-charge share ownership in decision-making

HIERARCHY

The power distance between those-in-charge and subordinates

High power distance

Subordinates look to those-in-charge for decisions and instructions

Individualistic culture

Individuals seek to be consistent with their identity as an individual over the group's identity

COHESION

The degree to which individuals prioritise group identity over individual identity

Collectivistic culture

Individuals seek to be consistent with the group's interest as they prioritise the group identity over their identity as an individual

Preference for flexibility and improvisation

People have a high tolerance to uncertainty and are more receptive and adaptable to changes

CONTROL

The degree to which people prefer structure and certainty, versus flexibility and improvisation

Preference for structure and certainty

People have a low tolerance to uncertainty and thus prefer to have clear rules, established norms and procedures

Focus on means

People value and emphasize on processes and relationships

ACHIEVEMENT

The degree to which people focus on the outcomes versus the means to achieve the outcomes

Focus on outcomes

People prioritise on achieving desired outcomes

HIERARCHY
The power distance between those-in-charge and subordinates

Low power distance High power distance

In a high Hierarchy environment, there is an inherent deference to management for decisions and instructions. When management's decisions are perceived to be aligned with the declared safety policies and procedures, subordinates recognise the consistency in management's safety actions, and commitment is amplified. A top-down approach in decision-making and instructions is the norm. This may however inadvertently limit constructive feedback from the ground and create a high barrier for communication.

In a low Hierarchy environment, ground-up initiatives are common, where subordinates are more involved and take ownership in decision-making. Consensus-seeking is the norm and creates a low barrier of communication. On one hand, there is greater transparency when changes are proposed as people are more open and direct in sharing their views. On the other hand, diversity of views means more time and effort are needed for alignment and for the proposed change to be carried out.

COHESION
The degree to which individuals prioritise group identity over individual identity

Individualistic culture Collectivistic culture

In collectivistic cultures, individuals support their group members, have a stronger peer-to-peer effect, and may also "toe the line" for the group's goals and interest. There is also likely an informal leader who has a significant influence over the group. Such a culture has certain group norms (spoken and unspoken) in terms of attitudes and behaviours towards various matters, including safety. When safety is incorporated as part of the group's well-being and harmony, group members would prioritise their reporting of safety risks and hazards. However, if safety reporting hurts the group's needs and goals, individuals may not report for fear of being identified or identifying others. It is usually effective to bring in the informal leader to champion safety objectives, and to establish group norms that strengthen safety culture.

In individualistic cultures, there is diversity in opinions and interests that would need to be aligned to the purposes of safety. Safety initiatives would therefore need to appeal to the individuals too. When safety is among an individual's priority or indicator for success, there would be less reservation by the individual in highlighting safety concerns.

CONTROL
The degree to which people prefer structure and certainty, versus flexibility and improvisation

Preference for flexibility and improvisation Preference for structure and certainty

In a high Control setting, people are resistant to changes and expect conformity, even to unspoken norms, as it provides predictability and stability. Rules and procedures tend to be more detailed to assure certainty.

Conversely, when there is a high tolerance for uncertainty, ambiguity in rules and procedures is accepted and enables flexibility and improvisation. People are not entrenched in the current way of doing things and are more receptive to changes. There is also higher acceptance for those who are not behaving to unspoken norms.

As procedures in aviation are developed in consideration to many other interfacing systems, compliance with existing procedures is necessary to provide assurance among the various parties and to ensure interoperability. When there is a preference for flexibility and improvisation, explain the rationale and implications of the procedures, and emphasize compliance. Clearly specify the necessary rules, procedures, and parameters, such as escalation to senior management, in dealing with any deviations.

ACHIEVEMENT
The degree to which people focus on the outcomes versus the means to achieve the outcomes

Focus on means Focus on outcomes

People who focus on outcomes strive to meet on-time delivery targets and may pay less attention to the processes involved. They are motivated by rewards for achievements and might not realise the importance or the rationale for the processes.

People who value processes and relationships focus on the journey more than the destination. However, over-emphasis on processes and relationships may affect operational efficiency, which is counterproductive to operations.

In aviation, the safety outcome would only be achieved and sustained with due attention to processes and relationships. People need to be motivated based on their tendencies so as to achieve the outcomes and adhere to processes in a safe and effective fashion. Understanding this Achievement factor will be useful for the organisation to devise appropriate key performance indicators that cover both outcomes and processes, coupled with suitable recognition.



WHERE TO START

Being aware of the safety culture dimensions and socio-cultural factors enables us to gain an insight into people's attitudes and behaviours in relation to safety policies, procedures, and initiatives. This also enables management to develop more effective methods to inculcate the appropriate safety mindsets, attitudes, and behaviours.

The impetus to improve safety culture may come from multiple sources, like a commitment to safety, regulations, safety culture survey results, or safety occurrences. Regardless, organisations are encouraged to develop and implement a safety culture improvement plan. The plan can consist of smaller, more defined steps, where an organisation may evaluate and adjust each step accordingly.

Fostering a positive safety culture is a long-term effort that requires deep and constant commitment from employees, at all levels and at all times. While significant efforts are required to attain a positive safety culture, it can also be lost easily. Continued effort and focus are necessary to guard against complacency.



3 | COMMITMENT

WHY IS COMMITMENT IMPORTANT?



Aviation safety provides for the fundamental assurance to sustain and grow our industry. Thus, having a strong **COMMITMENT** to safety is the primary pre-requisite for any safety improvement initiative to succeed. When there is a shared commitment, a culture can be created where everyone recognises the importance of, and is motivated to, continually improve safety. When management demonstrates a commitment to safety, it sets the tone for the rest of the organisation. This demonstration motivates and inspires their employees to follow their lead and prioritise safety in all aspects of their work.

HOW TO RECOGNISE COMMITMENT

Management commitment

In a positive safety culture, safety is a core value and essential for the continuity of operations. Operational personnel have confidence that senior and middle management are doing their best to achieve safe outcomes. Conversely, if management is not committed, safety may be considered only to meet regulatory requirements. Inadequate or superficial commitment will be picked up by operational personnel and little support will be given.



"As a supervisor, it can be challenging to balance commercial outcomes with safety concerns. However, it is important to remember that safety should always take precedence when there is any potential danger to aircraft or personnel."

– Production manager in Maintenance, Repair and Overhaul

For example, frequent operational stresses, such as excessive overtime, may indicate systemic issues arising from management's inadequate commitment. Planning, coupled with appropriate and timely investment of resources, such as manpower, tools, equipment, material, facilities, and training, shows management's commitment to avoid undue time pressure for safe operations.

A reflection of management's professionalism and commitment to safety is in their willingness to take action that could have financial and reputational consequences. For example, upon discovering that there had been significant errors in work done, management takes the decision to ground an aircraft to mitigate an unknown safety condition. Such an action would be a demonstration that safety was the key consideration even in the face of competing pressures. It would also demonstrate that management acknowledges that errors can still happen despite safeguards in place, and are ready to manage the consequences.



"Being responsible for ensuring commercial and operational priorities are met, I often feel pressured to prioritise these over safety concerns. It can be difficult to speak-up to challenge commercial decisions and operational policies that may negatively impact safety, especially when there is pressure to meet KPI."

– Flight crew manager in Airline Operations

When safety issues are resolved collaboratively between management and operational personnel, the ownership of these solutions or initiatives is shared across the organisation. For example, when initiating safety improvement, the use of appropriate data can clarify and home in on areas that need attention. Operational personnel provide perspectives arising from their frontline work that bring practical insight for effective implementation.

Jointly setting safety performance goals and celebrating success reinforce the importance of safety. Management works with operational personnel to set stretched but achievable performance goals that align with the organisation's safety objectives. When these goals are achieved, collective efforts are celebrated, which inspires the rest of the organisation to work together towards the safety objectives.



"As a commander, I strongly believe that safety is a shared responsibility among all members of the team, from the top organisational leadership down to the frontline."

– Flight crew manager in Airline Operations

Personal commitment

Personal commitment is reflected in an employee's attitude towards safety. Committed employees recognise safety as a core value and are motivated to continually improve safety in their workplace. There is an understanding that a high level of safety is essential for the continuity of operations. Safety issues are taken seriously even if they seem small. Every employee shares the responsibility in maintaining and improving safety.

There is an awareness and acknowledgement that unnecessary risk taking, driven by profit or performance concerns, could potentially be very harmful. Such behaviour includes signing for tasks that were not supervised or done by the individual (also known as "blind-stamping"), or turning up at work fatigued. Committed employees, particularly operational personnel, show their professionalism and take responsibility for their decisions and actions.

Committed employees actively participate in safety meetings, and report incidents and hazards. For instance, they may collaborate with colleagues to identify and address safety issues, or provide feedback on safety requirements and procedures. By doing so, committed employees inspire others to prioritise safety in their work and contribute to a positive safety culture within the organisation.

Personal commitment towards safety is influenced by both management and colleagues. It can be strengthened when operational personnel are provided with the necessary resources, such as training and equipment, to give them confidence in their ability to perform their job safely.



"I used to find my work enjoyable, but lately, due to a shortage of staff, the workload has become overwhelming and I worry about safety."

– Senior technician in Maintenance, Repair and Overhaul

Influence of colleagues

Colleagues have a significant influence on personal commitment. Safety-minded employees can refocus colleagues who do not take safety seriously, while negative attitudes can corrode commitment and create a culture of cynicism.

For example, a safety-minded employee may speak up when a colleague is seen engaging in unsafe behaviour, and encourage the colleague to prioritise safety. Conversely, an employee with a negative attitude towards safety may discourage others from reporting safety risks.

Cultivating a speak-up mentality and mutual respect for safe behaviour can encourage the reporting of unsafe operations, and challenge any negative attitude towards safety with openness. Reporting unsafe operations can deter violations of procedures and regulations.



"There are people who do not prioritise safety as much as the rest. They may simply focus on doing their job and not think about how they can contribute to improving safety or providing training. Speaking up about safety concerns may not always be well-received, as some may perceive it as an attempt to get ahead in the company. It makes those of us who do care about safety feel discouraged or ignored."

– Flight crew manager in Airline Operations

When committed employees expect and encourage safe behaviour in their colleagues, it results in mutual respect and reinforcement of safe behaviour. Mutual respect for safe behaviour is an indicator of the level of commitment towards safety.

Investment in safety

Active planning and investments in safety are tangible demonstrations of the organisation's commitment. This includes the allocation of manpower, equipment, time and budget to safety reporting, safety initiatives and safety training. For example, having sufficient experienced employees can provide guidance to new colleagues and ensure safe operations. Employment contract duration, benefits and wages can also impact employee commitment to the organisation's goals.

Organisations that demonstrate commitment properly maintain operational equipment and provide relevant training to operational personnel. Operational personnel, as frontline users, are involved in the setting and review of suitable, purposeful, and workable safety requirements and procedures. When new safety requirements are introduced, proper change management takes place with sufficient resources such as training, updating of processes and communicating the changes.

HOW TO STRENGTHEN COMMITMENT

As a manager...

Embed safety as a core value

DO's & DON'TS

Actively involve all stakeholders, including operational personnel, in the development of a policy that reflects the organisation's attitude towards safety.



Translate the policy into tangible actions and practices in daily operations. This includes setting clear safety indicators and targets to provide measurable benchmarks for assessing and improving safety performance across various operational aspects.



Articulate how safety considerations are integrated into decision-making processes.



Encourage the reporting of errors in daily operations. Recognise that by identifying and addressing the reported errors, risks can be mitigated and potential incidents can be prevented from occurring.



Conduct investigations to understand root causes and contributing factors, with the aim to improve safety, rather than to assign blame.



Constantly emphasise that safety is a shared responsibility and everyone has a duty to uphold safety standards.



Ensure that all employees, including management, operational personnel and temporary workers, understand and are committed to achieving the organisation's safety objectives.



Avoid incorporating values into the policy that are not truly embraced by management, as this may be perceived as hypocritical or insincere.



As a manager...

Exemplify safety practices

DO's & DON'TS

Share with operational personnel the rationale behind investments, postponements, and changes in decisions, and emphasise the measures that have been put in place for safe operations. This expresses how safety considerations are integrated in decision-making.



Be accessible and visible to operational personnel on safety issues. This can be achieved through various actions, such as scheduled safety meetings or walkabouts to the work floor to observe operations, seeking feedback on areas for improvement, and encouraging open communication.



Cultivate a psychologically safe space that values safety reporting and encourages feedback on unsafe situations, defective equipment, resource shortages, or incidents.



Dedicate a fixed time in the calendar for operational personnel to personally raise safety issues or concerns.

This dedicated time underscores the importance of safety and provides a platform for direct communication.



Respond to the challenges that operational personnel encounter and raise. Seek to resolve the challenges by taking decisive actions and provide updates that address their concerns, including the actions taken and the considerations in decision-making.



Refrain from sending mixed signals regarding safety expectations. This includes aligning verbal directives with supportive and consistent actions.

It is important to maintain consistency between words and actions.



Avoid downplaying, dismissing or being defensive when safety concerns are raised.

Give feedback in a respectful and constructive manner. For instance, instead of simply citing existing procedures or implying non-compliance, address the concerns and work towards constructive solutions.



Be cautious that safety improvement efforts are not perceived as putting on a show ("wayang").

Genuine commitment is essential. People can tell when there is insincerity, and it can ultimately undermine the efforts.



As a manager...

Facilitate and invest

DO's & DON'TS

Engage Operations Managers and Safety Managers regularly to understand their concerns and challenges and assess the adequacy of resources to support safe operations.



Provide a conducive work environment that supports employees in carrying out their work safely. Identify operational areas that are subjected to time pressures, and have potentially unsuitable work conditions or poorly designed equipment for the required tasks. These are opportunities for safety improvement.



Allocate the necessary resources to enable operations to be carried out safely.

Invest in resources, this includes allocating budget, manpower and equipment to meet the established safety targets.



Involve operational personnel to develop and define requirements and procedures, and leverage on their insights to enhance safety protocols and operational practices.



Empower operational personnel to halt activities if they perceive an explicit safety risk. Establish processes that give them the confidence to halt operations for safety reasons.



Take signals regarding resource shortages seriously, acknowledge such inputs from operational personnel and address any identified deficiencies. This ensures that safety is not compromised due to staffing or resource limitations.



Collaborate with external stakeholders to address obstacles hindering the achievement of safety objectives. This promotes a collective effort towards enhancing safety across the broader operational landscape.



Avoid leaving operational personnel with equipment in poor condition as this will compromise the quality of their work.

Recognise the critical role of well-maintained equipment in ensuring operational safety.



As an employee...

Be professional

DO's & DON'TS

Seek to continually learn and improve on your expertise. Use the expertise, experience and training acquired and make time to identify hazards and risks in daily operations.



Be engaged when performing safety-related tasks and procedures. Highlight any unsafe situations, safety hazards or impractical procedures to management.



Actively participate in safety briefings and stay informed of safety notes, lessons and other safety-related communications. Take heed of the safety warnings.



Speak up when unsafe behaviour or situations are observed. Approach colleagues who have unsafe behaviour with the understanding that they may not be aware of the potential risks.



Take care of the equipment, facilities, and tools issued. Utilise them properly as they may be used by others. Keep the work environment tidy and the tools and equipment in good condition so as not to induce errors in others.



Avoid mere box-ticking or going through the motion when performing tasks.

Approach checklists as guides and reminders and be aware of the safety protocols and tasks. This displays genuine commitment to safety practices.



Do not partake in unprofessional or irresponsible behaviour, for example, blind-stamping validation checks, or turning up for work in a condition not fit for work.

Recognise that everyone (including oneself) has the responsibility to uphold safety standards.





4 | TRUST

WHY IS TRUST IMPORTANT?



TRUST is the shared belief and expectation that everyone within the organisation will act and respond consistently in an acceptable manner with respect to safety. It is the conviction that the actions of colleagues and organisational processes can be depended on to achieve the organisation's safety objectives. While people are committed to safety and want to do the right things, trust provides the safe psychological environment for people to act in the interest of safety. There is openness in raising, discussing, and addressing safety issues.

Upfront advice on unsafe practices, and sharing of errors from colleagues are received in a professional manner, without rancour or retaliation. Employees will also use voluntary reporting systems (VRS) responsibly.

Trust is an innate response to one's perceived experiences. It is reflected in the long-term culmination of the organisation's equitable and appropriate treatment to all employees. The level of trust towards an organisation's commitment to safety is shaped by the employees' experiences and observations of interactions with management and colleagues. As such, trust is fragile and can deteriorate easily if there is inconsistency in the organisation's actions and declared safety commitment. For instance, if management downplays or dismisses safety concerns, this can be picked up as inconsistency in its safety aspiration and discourages safety reporting.

It is management's responsibility to initiate and maintain trust. This includes being conscious of any unintended signalling from actions and messages that are relayed through management's formal and informal responses. Actions speak louder than words, especially if they do not align. For example, if management emphasizes the importance of safety but does not allocate resources or provide training to support safety initiatives, it can undermine trust. Trust has a profound impact on how messages and actions are interpreted, and consequentially affects all other safety culture dimensions.

HOW TO RECOGNISE TRUST

Mutual understanding of expected behaviours

Where there is a high level of trust, there is consensus and clarity within the organisation on the agreed approaches and intended outcomes. Operational personnel and management alike are assured that their decisions and actions to improve safety are appreciated and acted upon by the organisation.

Management trusts that operational personnel had professionally and competently considered the safety issues before raising them. Conversely, operational personnel trust that management will treat their safety concerns seriously and follow through where necessary. This demonstrates that safety is not being used as a convenient guise to advance other interests.



"It is important to express what is expected from each other. Building trust is the primary issue."
– Senior manager in Airline Operations

Management responds to safety feedback by appreciating the reporter's intent, and explains the follow-up actions taken, including situations where no changes were deemed to be necessary. Professional maturity is demonstrated when operational personnel acknowledge and respect the decision of management.



"Building trust through regular engagement and leadership by example is key in fostering a culture of care and safety."

– Licensed Aircraft Engineer in Maintenance, Repair and Overhaul

Operational decisions taken by operational personnel in the interest of safety are accepted by management without reservation. They are trusted and empowered to make judgement calls on the ground to avoid an escalation of safety risks. Besides reviewing such operational decisions for learning and improvement purposes, the safety intent in making the call is recognised and encouraged.



The distinction between acceptable and unacceptable behaviour is unclear, as the line between them is constantly shifting. Actions that are considered acceptable today may become unacceptable tomorrow."

– Flight crew manager in Airline Operations

Organisational goals, strategies and decisions are made in alignment with the declared safety aspirations. Operational personnel are aware and trust that management decisions are made with safety considerations in mind, and that safety is duly and adequately managed even as the organisation pursues its business and operational goals.

Appreciation of safe behaviour

Job satisfaction is crucial for promoting safe behaviour and safe operations. When employees feel valued for their work, it positively influences their work attitudes and interactions with colleagues, enhancing their ability to handle job challenges. A committed organisation constantly expresses appreciation for employees who demonstrate safe behaviour. For instance, employees who contributed to safety improvement are publicly commended. Recognition of safe behaviour reinforces the employees' trust in the organisation's valuation of their contribution.



"In my company, it is generally not advisable to raise safety concerns unless they are urgent and require immediate attention. Bringing up safety concerns can sometimes be like opening a can of worms and lead to more issues. Why be the first person to raise it? It will not be appreciated."

– Technician in Maintenance, Repair and Overhaul

Among colleagues, there is appreciation and support for each other's positive safety attitudes. Colleagues have faith in each other's competence and mutually respect each other when providing or receiving advice for improvement. For instance, if an employee identifies and suggests a solution to address a safety risk, their colleagues listen and consider their advice.



"To align everyone's understanding of acceptable and unacceptable behaviours, safety dialogues are held regularly between management and operational personnel. These dialogues take place bi-weekly or monthly, and are aimed at reviewing past safety incidents and highlight any good practices as well as unsafe behaviour."

– Middle manager in Airside Operations

Fair evaluation of safety occurrences

The ground perception of management's actual values with respect to safety is strongly shaped by the manner in which they respond to safety occurrences: whether they adhere to investigation processes, and whether their assessments are objective and consistent with the established policies. It extends to situations where errors and lapses result in incidents or accidents.



*"Mistakes are opportunities for learning.
Hiding mistakes risks safety."*
– Senior manager in Airline Operations



"There is a lot of outward support for safety culture and active promotion to report safety issues. However, there is still a tendency to assign blame or engage in fault-finding when incidents occur."
– Manager in Airside Operations

In an environment with a high level of trust, the investigation is conducted with the view of obtaining a holistic understanding of all potential contributory factors, including the organisation's own policies and decisions. The actions of operational personnel and decisions of management are evaluated impartially and consistently. There is an

In cases where gross negligence or, in extreme instances, malicious intent is determined, a separate disciplinary board is convened to decide on the disciplinary action against the responsible employee. Taking disciplinary action when appropriate is important, as it signals that reckless or deliberate actions that undermine safety would not be tolerated.



HOW TO BUILD TRUST

As a manager... Promote mutual respect and cooperation DO's & DON'TS	Agree on a shared understanding of workplace behaviour with operational personnel (also known as expected behaviours). This establishes clear boundaries, guiding principles and values such as respect, integrity, active listening, seeking guidance, promoting a "speak-up" mentality, and adherence to processes.	Integrate the expected behaviours into the safety policy for alignment. Discrepancies between stated values and actual conduct will make the safety policy look like a paper exercise and the efforts may be ineffective or counterproductive.
Show appreciation to operational personnel by giving them due respect for their expertise. When operational personnel raise safety concerns or halt activities, take the view that the decisions had been done in good faith, unless it is shown to be otherwise. Recognise their competence when assigning tasks and responsibilities, and seek their advice on matters within their expertise.	Actively seek to understand the intricacies and obstacles that operational personnel face in their work and environment. This exhibits empathy and mutual respect.	Encourage open-mindedness, and receptiveness to feedback that questions the status quo in a constructive manner. Value honesty and transparency, for example when operational personnel acknowledge their own mistakes.
Refrain from emphasizing disciplinary actions, as this can cultivate a culture of fear that discourages the reporting of unsafe situations until incidents or accidents occur, and hinder proactive safety measures.	Avoid making rushed evaluation on the feedback received, as this may be perceived as dismissive and can undermine the thorough consideration of important factors, potentially leading to oversight or misjudgement.	Be careful not to give employees the impression that they are being monitored excessively, as it can breed feelings of distrust regarding their competence, impacting morale and productivity.

As a manager...

Conduct investigations in a fair and objective manner

DO's & DON'TS

Be transparent by making sure that investigation protocols and procedures are accessible to all, and appoint independent and trained personnel to conduct the investigation. This builds confidence in the integrity of the investigations.



Make a clear distinction between the investigation process and any decision-making on potential disciplinary actions. Convene a disciplinary board separate from the safety investigation processes to decide on disciplinary matters.



Take into consideration the person's level of experience when investigating their role in an incident. Involve employees with similar operational experience in investigations to provide contextual understanding of the decisions that led to the incident.



Seek to alleviate the uncertainty to employees who are undergoing safety investigations. Share the progress of the investigations with them and communicate the purpose and duration of any interim actions taken, for example, temporary removals from operational duties.



Avoid applying different investigation processes based on job function or seniority, or relationships, as this can lead to perceptions of unfairness and lack of objectivity in the investigation process.



Refrain from focusing solely on errors made at the operational level without thoroughly investigating other contributing factors, for example latent organisational and environmental conditions that may have led to the errors.

Acknowledge that human errors are inherent in daily operations, and may be symptoms of potential underlying issues.



Refrain from removing the involved operational personnel from their operational duties beyond what is necessary to determine if the person is able to perform competently.

Such temporary removals from operational duties should not be taken as a disciplinary action, rather, it should be intended to remove any potential risks until a proper assessment has been done on whether the person is fit for operational duties.



As an employee...

Gain the trust of others

DO's & DON'TS

Be familiar with the expected behaviours at work and act consistently with the shared understanding of expected workplace behaviours.



Follow procedures thoroughly and complete the assigned task properly. The person carrying out the next task is dependent on the quality of the work carried out by the person before. Every individual at every stage has a particular role and responsibility in ensuring safety.



Approach interactions with a positive mindset. Be receptive towards safety advice offered by colleagues. Ask questions to clarify concerns in a constructive manner.



Look out for the safety of others, expect and encourage safe behaviour amongst colleagues. This shows mutual respect and reinforces safe behaviour.



Always follow safety procedures. Recognise that safety procedures are intended to protect the user as well as others. Refrain from any actions that could hurt oneself or others.



Recognise that every individual's actions and decisions contribute to results. When mistakes are made, learn from the feedback given and seek to improve for the future.



Refrain from concealing errors or unsafe situations, as this can erode trust and cast a negative perception among colleagues.







5 | COMMUNICATION

WHY IS COMMUNICATION IMPORTANT?



Sharing and disseminating safety-related information are important for maintaining and improving safety standards. Operational personnel are often the first source of information regarding unsafe situations, hazards, risks, incidents, and accidents in their operational environment. Regular and proactive sharing of safety information within and across organisations keep people informed about safety issues and engaged about the importance of safety. It also facilitates the organisation's efforts, at all levels, to address safety concerns and improve on safety performance.

While platforms and procedures can be set in place to facilitate the flow of information, the availability of these tools alone does not guarantee effective communication. Effective communication requires getting the receiver to understand the message correctly. A message is not just the spoken or written word; it also includes unspoken cues such as tone, gestures and actions. Communication is a two-way process, involving not only the transmission of the message, but also the understanding and acceptance of the message by the recipient. Feedback is equally important as it reflects whether the input had been considered and would be acted upon. Regular safety meetings, publications or reporting systems aid the demonstration of commitment and reinforce trust. However, a lack of feedback from the recipients, which represents a breakdown in communication, can undermine these efforts.

HOW TO RECOGNISE COMMUNICATION

Safety is always a part of communications

When safety is a core value in an organisation, it becomes a regular part of the organisation's communications, whether internally or with external stakeholders. At the organisational level, follow-ups and lessons learnt arising from investigations, inspections, audits, risk assessments, etc. are regularly and widely shared with employees.



"Safety is usually the main topic of discussion in most of our meetings. The discussions centre on resolving safety-related issues or improvements to safety. This keeps everyone on the same page for safety and reinforces the importance of safety."

– Middle manager in Airline Operations

Management is kept abreast of safety occurrences and trends, and high-potential hazards and risks. They regularly discuss measures to mitigate the risks and hazards identified. The safety impact to changes in procedures, organisation structure, etc., are communicated across the organisation in a timely manner, particularly to those affected. Shift handovers communicate work status, potential safety issues, defective equipment and actions taken, so that work can be completed safely as it transits from one shift to the next.

There are regular safety conversations among management and operational personnel about any pre-existing conditions and precursors of occurrences in their workplaces. These are potential opportunities for safety improvements.



"Safety is hardly communicated within the organisation. When someone raises a safety concern or highlights safety hazards in meetings, it would be taken as read, brushed aside and not addressed. The meetings would be rushed as there were other meetings to attend. Safety is not given much attention."

– Operational personnel in Airside Operations

Willingness to share and report

When safety communication is a part of the organisation's DNA, employees feel empowered to proactively communicate safety issues. Management and operational personnel have an innate understanding of what constitutes safety-related information, who needs to have the information, which platforms are available to convey the information, and when the information is to be shared. The information is distilled to distinguish between crucial and non-crucial safety information, and is presented with a focus on its relevance to the intended audience.



"Safety matters are taken very seriously, and a thorough investigation is conducted to identify the root causes. This helps to determine the appropriate corrective action to prevent recurrences."

– Senior manager in Airline Operations

In organisations with good communication practices, management demonstrate their willingness to share through various channels that build safety awareness. One example is publications to keep employees abreast of the safety risks at the workplace and remind them of the importance of safety.



"Have you ever reported a safety concern, only to wait months for a response? It can be frustrating when investigations take so long, especially if it seems trivial to those in-charge. This can make you question whether it is even worth reporting safety concerns if they are not taken seriously or with any urgency."

– Flight crew personnel in Airline Operations

When employees understand the need to communicate safety-related information, they are more likely to treat concerns seriously and take related comments in a constructive manner. They are more willing to share and report, recognising that safety reports will be investigated to uncover systemic issues and improve safety.



"We have several different ways to report safety issues. Safety reports can be raised electronically in the intranet, via feedback forms and dropped into the VRS box located in the canteen, or reported directly to our superiors. This makes reporting accessible to all."

– Manager in Aviation Training

Organisations that communicate well understand that effective communication is a two-way process. They offer timely and appropriate feedback to the reporter, acknowledging that the concern has been received and is under consideration. Subsequent follow-up actions further communicate how the safety concern was treated in light of the organisation's commitment to safety.

Effective functioning of a voluntary reporting system (VRS)

An important tool to assess and improve safety is an easy-to-use system to voluntarily report safety events. A voluntary reporting system (VRS) is a platform that allows management and operational personnel to track and act on safety occurrences and concerns. For example, concerns regarding technical systems, procedures, and safety related behaviour can be raised through the VRS for the organisation's follow-up actions and trend analysis.

When an organisation values safety communication, it uses its VRS as a key platform to gather safety concerns. All employees are informed of and know how to use the VRS. The interfaces of the VRS are well-designed for ease of use and employees are familiar with it. Timely feedback on the follow-up actions and trend analysis arising from inputs to the VRS give assurance that safety concerns raised have been taken seriously.



"I have submitted voluntary safety reports before, but I don't know what happens to them. Without a closed feedback loop, it is hard to know if my concerns are being taken seriously and if any action is being taken."

– Engineer in Maintenance, Repair and Overhaul

Policies, processes and procedures such as timelines for feedback and assignment of reviewers for reports ensure the integrity of the VRS and to prevent its misuse. These provide assurance that reports are used to improve safety and not to discipline or excuse individuals from the consequences of their unsafe behaviours. A confidential reporting system that de-identifies the reporter to management would encourage the reporter to come forth with their concerns, while at the same time discourage the reporter from making false reports, i.e. misusing the system.

When consistently implemented, processes, procedures, and policies give confidence to employees to identify themselves when reporting. It is important to recognise however that the level of trust within the organisation is an important factor in the success of a VRS, as operational personnel may be reluctant to submit voluntary reports if they do not trust that their identities would be adequately de-identified and protected.



"I recently made an unintentional mistake at work, and even though no one else noticed, I felt responsible to report it. I knew that by reporting my mistake voluntarily, I could help prevent similar incidents from happening in the future. It wasn't easy to admit my mistake, but I believe that taking responsibility for our actions is important for safety. By being honest about our mistakes, we can learn from them and work together to create a safer and more productive workplace."

– Middle manager in Airline Operations

Misuse of VRS to penalise or find fault with individuals can deteriorate the trust within an organisation. This hinders the open sharing and reporting of issues to improve safety. Sometimes, anonymous reporting may increase the possibility of misuse as the reporter cannot be traced. For the effective functioning of an organisation's VRS, it is important that employees understand the purpose, capabilities, and consequences of reporting, and adhere to its guidelines.

HOW TO ENABLE AND IMPROVE COMMUNICATION

As a manager...

Make communications relevant and engaging

DO's & DON'TS

Emphasize the communication of safety information and the promotion of safe behaviour as integral parts of job responsibilities.

✓

Develop a communication plan that is strategic, comprehensive, targeted and responsive to the needs of the organisation. Collaborate with operational personnel and engage relevant external stakeholders in doing so.

✓

Ensure that the communication plan meets the needs of the different target audiences, such as management and operational personnel, and consider for example, channel of communication, frequency and criticality of the information.

✓

Take into consideration the prevailing level of trust within the organisation. Recognise that the level of trust has an impact on the interpretation of shared information.

✓

Keep the management team regularly updated on safety information and feedback received, including reports from VRS that have been appropriately de-identified.

✓

Reserve sufficient time at shift handovers for the outgoing shift to relay safety-related information to the next shift, including work status, potential safety concerns, equipment issues, and actions taken.

✓

Avoid overwhelming the recipients of safety communications with excessive information, as it can cause crucial safety information to be missed and desensitize individuals to safety communications.

⚠

Refrain from withholding factual information or feedback from safety incidents, even if such information or feedback may be perceived negatively.

Instead, de-identify the information where appropriate, emphasise the safety message and allow for more organic ways of sharing information where individuals at different levels of the organisation can share safety lessons without having to seek clearance from multiple layers.

⚠

As a manager...

Make VRS an important and significant part of operations

DO's & DON'TS

Recognise VRS as a vital source of information about hazards, risks, challenges, and potential unsafe situations, and emphasize its significance in promoting safety awareness and proactive risk mitigation.



For the purposes of confidential reporting in the VRS, establish procedures to de-identify the reporter and share these procedures widely.



Encourage the use of VRS. Consider volunteers from all organisational levels to serve as ambassadors to promote the purpose and benefits of the VRS, including examples of how safety reports have led to corrective actions and improved safety.



Make the VRS easy to use, for example, identify the essential information necessary to enhance safety, and make it easy to input the information so that it can be easily accomplished during duty hours without compromising other responsibilities.



Verify that all employees are familiar with VRS, and whether safety reporting is a convenient process. Take all complaints regarding the VRS seriously, avoiding unintentional barriers that could render the VRS inaccessible, incomprehensible, or the safety reporting process difficult to complete and submit.



Be consistent in handling all safety reports and share the assessment criteria and processes. Ensure that individuals receiving and assessing safety reports possess relevant operational experience and are trained in safety investigations. This gives credibility to the assessment process.



Periodically communicate the reports received through the VRS and the corresponding actions taken as a result of these reports. This expresses that reports had been considered. It also promotes transparency and accountability in addressing safety concerns.



Refrain from sharing confidential information, such as reporters' names or details of investigated personnel, to maintain trust in the communication platforms and protect individuals' privacy.



As an employee...

Communicate to be safe

DO's & DON'TS

Pay attention to safety information and have a clear understanding of its relevance to operations. If the information appears unclear, ineffective or counterproductive, check with your colleagues and inform your supervisor.



Recognise that sharing of safety information and promoting safe behaviour are expected behaviours. Respond to safety communication and regularly engage on safety issues with colleagues and supervisors.



Be familiar with the process for reporting safety issues. Make use of the VRS even if the issue appears to be minor, as undetected risks can be revealed if many such reports are received.



Encourage colleagues to report safety issues and emphasize the importance of proactive safety reporting within the team.



Use the VRS responsibly, with the view to improve safety.

A VRS is not meant to be a platform for individuals to gain immunity from disciplinary actions from gross negligence or intentional violations.



Refrain from withholding safety information from supervisors or colleagues, even if it may negatively affect your colleagues. De-identify the persons involved if necessary.



Avoid using VRS for non-safety related issues, as such actions can undermine the credibility of the reporting system and its users.







6 | AWARENESS

WHY IS AWARENESS IMPORTANT?



AWARENESS of safety risks that may impact others enables a person or organisation to navigate challenges that they may come across in their work. It is essential to have the ability to sense-make the safety implications of changes in the environment. Safety awareness is akin to an antenna tuned for safety risks and hazards. It is also being conscious that unintended consequences may result from well-intended changes. When all employees in the organisation become more attentive towards safety issues and potential unsafe situations, they realise the need and understand the purpose of safety procedures. They are more likely to take the necessary precautions to prevent safety occurrences. Even in the absence of safety incidents, safety is still top of mind.

HOW TO RECOGNISE AWARENESS

Attention to safety and Awareness of work-related hazards

The aviation industry has achieved a high level of safety due to its unwavering attention to safety and strong awareness of the inherent hazards in aviation. In an organisation with high safety awareness, management and operational personnel are mindful of the hazards that the organisation's operations may pose to themselves and others (such as those working in the vicinity or using the organisation's products, and air passengers) and to other organisations that they interface with. The organisation also recognises that its safety is dependent on others and therefore needs to be alert to hazards that may arise from other sources, such as vendors and business partners.

Employees recognise that new equipment and procedures are introduced to mitigate safety risks. There is an instinct within the organisation to consider potential implications, such as unintended new hazards and risks, when there are changes. Checks are also in place to detect any gradual deviation from established procedures over time, also known as "procedural drift".

Institutional knowledge, such as the rationale for changes to procedures and policies, is properly documented and made accessible within the organisation. This allows employees to gain a better appreciation of the mitigating measures taken towards the safety hazards and risks.

When management is attuned to safety issues, efforts to resolve the issues are formalised in the organisation's plans and tracked regularly.



"The airside is a very busy and dynamic environment, with a lot of activities and movements taking place under various weather conditions. Attention to safety is important to my work as the pace and volume of activity can potentially give rise to numerous safety hazards and risks."

– Operational personnel in Airside Operations



Attitude towards unknown hazards

A low number of incidents may lead to the belief that all safety issues have been managed and the highest possible level of safety has been achieved. This can lead to complacency.



"I do not think my organisation is very proactive in identifying potential hazards, especially in new situations or conditions."

– Cabin crew manager in Airline Operations

Maintaining an attitude that safety can always be improved, and acknowledging that there are blind spots that remain uncovered or unaddressed, helps to combat complacency. This mindset encourages the development of habits that identify and mitigate risks, and promotes vigilance towards new hazards.

In the absence of incidents or accidents, taking a proactive approach to unknown hazards, emphasizing the need for constant attention to unexpected and unsafe circumstances, reinforces safety attitudes.

Safety-related events or briefings are regularly held to communicate the potential hazards arising from changes in working conditions, team composition, procedures, equipment, or environmental factors. Safety trend analyses that identify occurrences of previously unknown hazards, such as risks encountered by others in the industry, are regularly presented to management.



"I remain vigilant towards new situations or conditions, as they may introduce new hazards."

– Manager in Aviation Training

HOW TO CREATE AWARENESS

As a manager...

Maintain continuous vigilance

DO's & DON'TS

Remain mindful that management decisions, such as disciplinary actions, can inadvertently introduce unwanted risks and consequences to operations and employees. Assess the extent to which safety is considered in these decisions and remain attentive to potential implications.



Maintain awareness of the operational environment and associated safety concerns. This involves working closely with operational personnel to understand the risks they face, leverage on their insights and experiences, and gather their feedback to collectively identify safety trends and hazards.



Acknowledge the tendency for vigilance to wane among employees when incident rates are low, and implement measures to combat complacency. Emphasize to employees that unnoticed hazards and unintended hazards can arise as the operating environment is dynamic.



Conduct safety risk assessments as part of change management. The assessment can proactively identify hazards by considering the potential safety implications of decisions and external factors, such as regulatory changes.



Acknowledge the possibility of "procedural drift" and take proactive measures, such as monitoring of processes and recurrent training, to mitigate it.



Refrain from assuming that existing processes and procedures would always be sufficient to maintain safety.

There is a need to review them regularly taking into account new hazards and risks that may not have been previously considered.



Avoid regarding safety as a short-term endeavour achieved solely through specific activities.

Recognise that safety is an ongoing collective effort that requires constant reinforcement.



Avoid making the assumption that safety excellence has been fully achieved based solely on a high level of safety performance, as safety records reflect past, not future, performance.



As a manager...

Improve collective safety awareness

DO's & DON'TS

Leverage on existing communication channels, such as safety forums, workshops, training, to share safety experience, provide feedback and address challenges. Internal forums facilitate cross-departmental learning within the organisation and keep safety top of mind.

Make safety-related information accessible to all, so as to cultivate collective responsibility and awareness for safety throughout the organisation.

Emphasize that safety is a concern for every employee. Even employees in corporate functions whose roles are not directly safety-related can have an impact on the safety focus of the organisation.

Document the rationale behind new procedures or procedural changes. This forms institutional knowledge that can support future decision-making.

Track all feedback and use it as part of the safety reporting trend analysis. Recognise that even seemingly insignificant or minor reports can offer valuable insights into the prevailing sentiments and potential safety implications on the ground.

Avoid limiting safety activities and the dissemination of safety-related information to employees in the operations or safety departments.

Sharing information widely can bolster collective safety awareness and preparedness.

As an employee...

Stay vigilant

DO's & DON'TS

Understand the existing operational risks and know where to access relevant information. If uncertain, seek guidance from the safety department to clarify any concerns.



Recognise that things may not go according to plan in daily operations. Be ready to "expect the unexpected". This involves knowing what steps to take and who to notify when a deviation is observed.



Recognise that new or unexpected situations may introduce new hazards and risks. Be mindful of the impact of any actions on the safety of others and on downstream activities.



Recognise that people have a tendency to focus on information that confirms their expectations. They may miss warnings or other contradictory information. Establish procedures or training to check against such tendency and to detect warnings and unusual readings.



Acknowledge that everyone is prone to "procedural drift" and correct the "drift" by adhering to the written procedures. If the procedure appears impractical or obsolete, raise it to management.



Be careful not to overlook safety information and any unsafe behaviour, as doing so may lead to the emergence of unsafe situations and compromise overall safety.



Be cautious that there is a risk of complacency setting in gradually over time, with safety being taken for granted or given lip service, especially when there is a low number or absence of incidents.

Remember to stay alert and take action to mitigate risks.





7 | IMPROVEMENT

WHY IS IMPROVEMENT IMPORTANT?



Striving for progress and excellence is a cornerstone for a positive safety culture. **IMPROVEMENT** is necessary to address the evolving hazards and risks that may lead to accidents or incidents. After an organisation becomes aware of hazards and risks, improvement drives the organisation to act upon that knowledge to effectively mitigate the risks. For instance, the sharing of lessons learnt from analysis of events, and evaluating the corrective and preventive actions taken. These establish a mechanism to put safety into action and systemically improves the management of safety.

HOW TO RECOGNISE IMPROVEMENT

Lessons from safety occurrences

When faced with accidents and safety incidents, near misses and unsafe situations, management and operational personnel take steps to learn from such occurrences. Investigations focus on uncovering the causes and contributing factors, and lessons learnt are documented and shared. Concrete actions are taken to prevent recurrence, including actions to address systemic and organisational issues, where necessary.

In an organisation that values improvement, a comprehensive and systematic approach is adopted to assess the effectiveness of mitigating actions. This starts with the identification of potential hazards and contributing factors, followed by the development and implementation of mitigating actions to address the associated risks. Evaluations of the corrective and preventive actions are carried out to assess the effectiveness of mitigating actions taken, and checks are carried out for any unforeseen hazards and unintended consequences of the actions taken. Remedial actions are planned and evaluated accordingly. Knee-jerk reactions, such as imposing new procedures that do not really address the contributing factors, are avoided.



"Many actions are taken as immediate, reactive responses to address an issue. A holistic systemic assessment of the situation is not done to address the underlying real causes. This comes across as a knee-jerk reaction."

– Flight crew manager in Airline Operations

While the evaluation and follow-up of mitigating actions are usually managed by the Safety Department, operational personnel are also involved as the responsibility for safety is shared across the organisation. The set-up of Safety Action Groups (SAG), dedicated groups of relevant experts from operational and safety departments, provides the organisation with platforms for sharing knowledge and experience across the organisation. SAGs may also assess if a safety occurrence could be repeated elsewhere or if a proposed corrective action may be beneficial in other situations.



"Our Safety Department will always be involved when addressing safety issues in my organisation."

– Senior manager in Airline Operations

Effective training

Training builds competency and promotes safety awareness within the organisation. Organisations invest regularly and sufficiently to maintain and improve employee competence and safety attitudes. The training applies to management and operational personnel alike, as knowledge is necessary for safety to be a core value.



The quality of training is dependent on the trainers. I have seen trainees who, after completing their training period, are still unsure with procedures. There is also a lack of a structured training programme.”
– Senior technician in Maintenance, Repair and Overhaul

Regular reviews are conducted to evaluate the effectiveness of training programmes. Such reviews also identify enhancements to training syllabi to keep all employees current on relevant safety issues.

Proactiveness for improvement

Reaching a high level of safety requires more than just reacting to safety issues, incidents, or accidents. When management and operational personnel have an attitude of continuous improvement, processes are put in place to catch safety lapses and minimise safety occurrences.



“Safety improvements in my organisation are sometimes triggered from team suggestions.”
– Middle manager in Maintenance, Repair and Overhaul

An organisation’s reporting system, safety management system, risk assessments, audits, investigations, and change management processes are good sources of information to identify opportunities for improvement. Management leverages on these opportunities and allocates adequate resources to implement enhancements. Other organisations are also involved to assess safety risks on the interfaces. For example, an airline, airport, and ground service provider may participate in regular domain-specific or cross-domain sessions to discuss changes, such as turnaround procedures, or current developments in economics, demographics or technological advancements to identify implications and potential risks to safety.

Proactiveness to improve safety is seen in whether safety concerns are taken seriously. Management appreciates that operational personnel share their experiences and remain open-minded to suggestions on safety. Operational personnel are engaged and actively participate in and contribute to safety improvement initiatives. Safety improvements are constantly part of the organisation’s strategy and are supported with sufficient resources. Working environments are well maintained so that they remain conducive for employees.



“Not all changes have been properly assessed for safety risks. Often the safety assessment was conducted last minute and like a paper exercise, so as to tick the box to implement the changes.”
– Operational personnel in Airside Operations

HOW TO CONTINUE TO IMPROVE

As a manager...

Build competency throughout the organisation

DO's & DON'TS

Provide initial and recurrent training at all levels to improve competency and safety attitudes. Consider customising the training to match their respective job roles and regularly evaluate their training needs.



Perform regular competency checks and maintain comprehensive training records for each employee. Review training programmes regularly or when there are procedural or organisational changes, to ensure relevance and effectiveness.



Ensure that training and training materials are comprehensible for the target audience. For example, when training non-English proficient operational personnel, consider providing translations to aid their understanding of safety issues.



Make the training more relatable by incorporating operational input, feedback from the ground, and the participation of individuals involved in safety incidents. This approach can also help destigmatise their involvement in safety incidents and foster open sharing to improve safety.



Recognise the potential decrease in competency and the existence of a training backlog for individuals returning to work after a prolonged absence from the workplace.



Avoid viewing training solely as a means to fulfil regulatory requirements, and recognise its broader significance in enhancing safety and competency.



Refrain from repeating the same material for recurrent training, as this may indicate a lack of review to incorporate recent changes, improvements, and safety considerations.



As a manager...

Foster improvement

DO's & DON'TS

Proactively anticipate potential risks and hazards, and emphasize the need to go beyond reacting to safety occurrences. Establish Safety Action Groups (SAGs) with adequate resources to implement safety improvements.

Empower operational personnel to drive ground-up safety initiatives. Start by encouraging solutions from them when safety issues are raised, and allocating resources to implement viable ideas.

Keep safety improvement as a key performance indicator as it sets an objective safety goal, even for organisations with a low number of incidents.

Evaluate the effectiveness and necessity of new operational procedures thoroughly before implementation. Involve operational personnel in the development of preventive or corrective action plans.

Establish procedures that allow individuals to have a say over their own training needs, and allocate training resources to all levels, including management and operational personnel.

Avoid addressing safety lapses in a piecemeal fashion, recognising that lapses may stem from systemic issues and should be addressed within the context of the organisation's systems as a whole.

Be careful that safety issues may be overlooked without a thorough evaluation. A thorough evaluation is an integral part of the safety assurance process. Consider assigning experienced employees to tap on their expertise to assess reports, analyse contributing causes, and develop corrective actions.

As an employee...

Apply safety awareness

DO's & DON'TS

Take an active interest in learning from previous occurrences. This involves understanding the causes and contributing factors from past safety investigations, and strive to avoid them in daily operations.



Approach training as an opportunity to enhance competency and capability, rather than viewing it as just another task to be completed.



Take ownership of training needs. Actively participate in training and share safety-related experiences. Stay mindful of weaknesses.



Give feedback and highlight the areas for improvement to management if there are procedures or training that appear to be impractical, instead of ignoring or circumventing them.



Initiate ground-up improvements for safety within job responsibilities. Collaborate with like-minded colleagues to present safety improvements to management.



Recognise that every decision and action contributes to safety. Aviation safety is a collective effort of everyone in the organisation, not just the responsibility of the safety department.





8 | CONCLUSION

"When people fly, they put their trust in us - regulators, aircraft manufacturers and airlines - to get them where they need to go, safely. The aviation eco-system comprises a wide array of companies and workers; CAAS exercises safety oversight over 200 organisations, 220 aircraft and 14,000 personnel. We are highly interconnected. Each of us, in our respective individual and organisational capacity, will have to play our part. Let us take Singapore aviation to greater heights, safely together."

- Han Kok Juan, DG, CAAS at the opening of Aviation Safety Forum 2023

REAL-LIFE LESSONS ON SAFETY CULTURE

In the preceding chapters, we have delved into various aspects of recognising and enhancing safety culture. This final chapter aims to underscore the practical impact of safety culture through the analysis of two anonymised case studies derived from past reports of actual events by national accident investigation boards. These case studies are intended to shed light on scenarios that may arise in our environment and

daily work. They present how the safety culture dimensions covered in this handbook come together to describe the tangible and extensive effects of safety culture, prompting us to contemplate the implications of safety culture within our respective organisations.



Case study 1:

Recognising the interrelations of the various dimensions

The emergency

Shortly after take-off, the flight crew were prompted by the observation of a vapour trail streaming behind the aircraft, and declared an emergency upon suspecting a fuel leak. The aircraft landed safely, and post-flight inspection revealed that the fuel leak originated from an uninstalled panel inside the left main landing gear bay. According to the aircraft manufacturer's safety analysis, the fuel leakage posed the risk of a wheel-well fire, which could have spread through an opened panel into the centre wing tank. Fortunately, no ignition source was present in the landing gear bay.

Investigation findings

The removal of a panel in the centre wing tank had not been properly documented. The task of refitting the panel was not raised. As a result, the aircraft returned to service with a missing panel. Interviews with operational personnel unveiled that similar instances had occurred previously, but were not reported in the internal maintenance error reporting system. This meant that the error of removing the door without proper documentation was not brought to management's attention until the incident occurred.

The internal maintenance error reporting system was not widely used throughout the organisation. Employees expressed concerns that when safety issues were raised, the focus was on finding the person responsible, and that corrective actions were perceived as ineffective. Additionally, the company lacked internal investigators who had received formal maintenance error investigation training. There were also no formal feedback processes regarding reports raised through the internal maintenance error reporting system. In cases where disciplinary actions were taken, very limited information were made available.

The task descriptions for fuel tank maintenance were found to be of poor quality, with unclear drawings and procedures. This issue was compounded by a shortage of resources in the planning department, where responses to requests for engineering advice and reported errors were not prioritized. As a result, job cards were not promptly or accurately corrected. Operational personnel stopped reporting errors relating to the job cards and Aircraft Maintenance Manuals due to the perceived lack of follow-up. Long-term corrective actions on previously reported errors were also not formally tracked.

Implications to safety culture

In our daily operations, we may unintentionally overlook safety reports and feedback due to competing operational demands. This incident underscored how the handling of safety reports and feedback shaped operational personnel's perception regarding management's approach to error investigations and safety documentation. Unfortunately, their perception of the internal reporting system ran contrary to the intended purpose of a voluntary reporting system. This led to underreporting of safety risks and hazards, including errors that were not brought to the management's attention. This breakdown in communication and trust not only eroded safety reporting practices, but also impacted the awareness of the operational personnel. Consequently, the organisation was deprived of critical information about gaps in the maintenance procedures. This hindered the organisation's ability to implement effective corrective actions and enhance safety standards. Feedback, being an essential part in communications, significantly influenced the other safety culture dimensions, affecting the commitment of operational personnel, trust in management's actions, and subsequently, the organisation's awareness of risks and safety improvement capabilities.

Case study 2:

Combining forces: Everyone has a role to play

The emergency

During its climb, an aircraft experienced an uncontained failure on one of its engines, resulting in significant structural and systems damage. A low-intensity fire broke out when a large fragment of a turbine disc passed through an inner fuel tank. Fortunately, conditions within the fuel tank were not conducive to sustain the combustion and the fire self-extinguished. Despite the challenges, the flight crew successfully executed the emergency procedures and the aircraft landed back at the departure airport.

Investigation findings

The engine failure was caused by an internal oil fire. The fire was due to oil leakage from a crack in an oil pipe. The investigation revealed that several oil pipe components did not adhere to the design specifications. It was discovered that within the oil pipe manufacturer's facility, the absence of clear guidance in the quality procedures led to individual interpretations of what constituted a "minor" non-conformance. There was a lack of standardization on how to determine "minor" and acceptable non-conformance. This ambiguity led to the acceptance of parts with non-conformances that were actually unacceptable, that contributed to the incident.

Implications to safety culture

The practice to release parts with minor non-conformances was not an intentional violation of procedures. Rather, it arose from differing views and expectations of quality and inspection processes. This lack of shared understanding on "minor" non-conformance underscores the importance of communication and dissemination of information to

enhance and maintain safety levels within an organisation. The operational personnel in the manufacturing facility were not conscious of the significance and potential safety consequences of non-conformances, as well as the rationale for detailed specifications. This led to ineffective quality assurance procedures.

This incident serves as a stark reminder that seemingly insignificant actions that start from the manufacturing of aircraft components can have catastrophic consequences later on. Fortunately, in this case, the flight crew were able to avert a disaster. It emphasises the critical need for individuals at every stage – from design, manufacture and maintenance of aircraft and its components, to flight and cabin operations, aerodrome and air traffic control services – to remain acutely aware of their roles and responsibilities in ensuring safety.

YOUR ACTION, OUR SAFETY

We have made significant strides in enhancing our safety standards. Notable progress has been achieved through strict regulatory compliance, close safety oversight, transformative technological advancements, and a heightened emphasis on human factors and management of risks and hazards. A sustained focus on inculcating a positive safety culture is the next bound in advancing aviation safety.

The cultivation of a strong safety culture hinges on the right mindsets, attitudes and values. Through socialisation and leadership, individuals gather perspectives that influence their approach towards safety. When every individual, regardless of their role, whether managerial or operational, exemplifies safe practices and encourages others to do the same, it sets an expectation and facilitates safe behaviour. This demonstrates mutual respect and reinforces trust amongst colleagues.

Throughout this handbook, **COMMITMENT, TRUST, COMMUNICATION, AWARENESS** and **IMPROVEMENT** have been highlighted as the vital components to sustain a safety culture that is at the heart of your organisation. The aforementioned case studies present how seemingly minor omissions or actions, when left unaddressed, can gradually become the norm, eroding the safety culture within an organisation. This can lead to the unintended consequences, such as emergency circumstances, faced by those working at the frontline – in aerodrome and flight operations. The aviation industry is intricately inter-connected, with each action and decision influencing subsequent processes and operations. It is incumbent upon each of us to recognise our role and responsibility in contributing to aviation safety.



This handbook, developed in collaboration with aviation stakeholders in Singapore, presents how our existing behaviours bridge with the mindsets, attitudes and values for safety culture. It offers comprehensive guidance to propel an organisation's safety culture journey. Starting with the Singapore Aviation Safety Culture Framework, which establishes a common frame of reference for all, it acknowledges the profound impact of socio-cultural factors on safety culture, in addition to the safety culture dimensions. By exploring the desired states for and providing recommendations to each safety culture dimension, the handbook provides a foundation for progressing our efforts and discussions on safety culture. By collaboratively fostering a positive safety culture, aviation safety continues to be prioritised and established as a cornerstone for sustaining and advancing the Singapore Aviation Industry.

Let us continue to work towards a culture where every individual:

- **COMMITTS** to making safety a key consideration in decision-making and giving it due priority when faced with other competing pressures,
- **TRUSTS** in one another that safety is the motivation of their actions, and operates on a mutual understanding of acceptable behaviours,
- actively **COMMUNICATES** in the reporting, alerting and sharing of safety information,
- is keenly **AWARE** of the safety risks they are exposed to, and may be generating for others, and
- is driven to seek **IMPROVEMENT** in safety, recognising that safety is a continuous journey and not a destination.



