

High Reliability Organisation

Presented by PLC

SUMMARY

High Reliability Organisations (HROs) were originally pioneered in extremely hazardous industries such as nuclear power and commercial aviation, where even the smallest mistakes could lead to tragic consequences. These industries have achieved and maintained extraordinary levels of safety, resulting in a great deal of interest in how to apply HRO principles to healthcare and replicate this success. Today, HROs are gaining popularity and are being explored for implementation by other organisations looking to achieve these levels of safety.

1. INTRODUCTION

- 1.1. A high reliability organisation (HRO) is one that experiences a low percentage of undesirable outcomes despite operating in a highly complex, high-risk environment. They can handle hazardous activities at an acceptable level of performance through appropriate management of people, technology and processes. Many organisations have been recognized through scientific studies as HROs. According to Piederman et. al., Air Navigation Service Providers are one of them.
- 1.2. In their 2007 book "Managing the Unexpected," Weick and Sutcliffe define the 5 principles of HROs and describe how these principles can be applied to improve reliability across diverse industries.
 1. preoccupation with failure;
 2. reluctance to simplify interpretations;
 3. sensitivity to operations;
 4. commitment to resilience; and
 5. deference to expertise.

- 1.3. It is unclear if these principles and attributes align with the description of how air traffic controllers and air traffic managers operate. So, what is it that makes an ANSP an HRO? Can HRO theory as a holistic system be defined and implemented to improve current structures? In the discussion, this WP will further analyse these hallmarks with explanations and comparisons.

2. DISCUSSION

- 2.1. According to the Federal Aviation Administration (FAA), the Air Traffic Organization, which includes the personnel that manage the airspace system (or Air Navigation Service Provider) provides service to more than 45,000 flights and 2.9 million airline passengers across more than 29 million miles of airspace every day.⁴ Similarly, EUROCONTROL reports just under 35,000 flights during peak days with a total of 10.2 million flights served carrying 1.19 billion passengers in 2023.¹ This amount of volume combined with its inherent complexity provides for the high risk environment with a very low amount of accidents or incidents leading to undesirable outcomes.
 - 2.1.1. The primary mission of air traffic control is the safe and efficient movement of aircraft operating in the system.² While safety is the primary concern to prevent the collision of aircraft, air traffic controllers must also move aircraft efficiently and minimise delays.
- 2.2. Paula Lewis of the Federal Aviation Administration in her comparison of high reliability organisations notes that all domains she compared (ATC, a nuclear power plant, and a children's hospital) have common properties:
 1. The employment of skilled personnel that are certified by regulatory authorities and require specialised training,
 2. Certification of operations is overseen by regulatory authorities, and
 3. Metrics are focused on risks.³
- 2.3. According to Biedermann, Papatheodorou, and Prowle, the world's Air Traffic Control systems are considered HROs because they consistently avoid serious incidents despite the high risk and complexity of their environments.
- 2.4. Safety and efficiency for the sake of cost reduction are often at odds with one another and within aviation, political influence and stakeholder interests are deemed to have a high risk of conflicting with safety (Biedermann, Papatheodorou, Prowle, Bulatovic 2024). Any participant in the aviation sector

¹ EUROCONTROL. (2023, July 7). *EUROCONTROL European Aviation Overview 2023*.

<https://www.eurocontrol.int/sites/default/files/2024-01/eurocontrol-european-aviation-overview-20240118-2023-review.pdf>

² *National Airspace System*. National Airspace System | Federal Aviation Administration. (n.d.).
https://www.faa.gov/air_traffic/nas

³ Lewis, P. (2013, April 23). *Comparison of High Reliability Organizations (HROS)*. Washington D.C. Retrieved June 8, 2024,.

must be stable and reliable to avoid catastrophes.⁴ Driven sometimes from regulations which may require cost reduction in the ANSP, this type of conflict can make it difficult to maintain public trust and user confidence. This issue is important because the cost of maintaining high reliability requires increased overhead in auditing, testing, training, and monitoring as well as ensuring redundancy of systems, staffing, and structure.⁵

- 2.5. It has been said that our most valuable asset in the aviation industry and specifically in Air Traffic Control, is the people (EUROCONTROL October 2019). Without people who can adapt and respond to changing situations, ANSPs and perhaps HROs would not be as reliable as they are. ICAO Doc 9854, Global ATM Operational Concept, Guiding Principles states: “Humans will play an essential and, where necessary, central role in the global ATM System.

Foundational Principles of HRO Theory

- 2.6. High Reliability Organisation Theory (HROT) highlights five characteristics or principles, which HROs need to have to achieve high standards of stable operations. This paper provides insights on how Air Traffic Control systems apply HROT in practice. As Air Navigation Service Providers are set up to maintain the high safety levels within the aviation industry, this is an exemplary case to investigate theory versus practice.

- 2.7. Preoccupation with Failure:

- 2.7.1. Directing attention to ways in which normal operations could reveal symptoms of system malfunction, small errors that could enlarge and spread, opportunities to speak up and be listened to, drift toward complacency, the need to pinpoint mistakes you don't want to make, and respect for one's own experience with surprises. (Weick, Sutcliffe, *Managing the Unexpected*)
- 2.7.2. In ATC, schedules and traffic patterns can be redundant; however, each session is different in the way of conflicts, equipment operability, and complexity. Professionals in a complex system must maintain a high level of attention mitigating such risks as complacency, expectation bias, and hubris. To manage the unexpected, we must always be looking for errors.
- 2.7.3. When systems are operating safely and reliably, there is less risk; therefore, there are normal or expected outcomes and seemingly nothing to pay close attention to. ATCOs must be reluctant to become complacent. IFATCA TPM 67.0, MED 8.2.9 states:

⁴ Biedermann, M., Papatheodorou, A., Prowle, M., & Bulatovic, I. (2024). High reliability organisations in a changing world: The case of air traffic control. *Research in Transportation Business & Management*, 53, 101099. <https://doi.org/10.1016/j.rtbm.2024.101099>

⁵ Casler, J. (2013, June 18). Revisiting NASA as a High Reliability Organization. https://www.researchgate.net/publication/257639889_Revisiting_NASA_as_a_High_Reliability_Organization

During periods with light stimulation, monotony can occur. Combine monotony with fatigue that most will experience on a night shift and it can lead to less than optimum performance when needed. Due to ongoing research and sharing of fatigue mitigation efforts in the aviation community, there is a greater understanding of fatigue and how it affects ATCOs, as well as countermeasures that can be applied. The IFATCA policy is: -

Member Association should devote resources to research, development of collaborative solutions and training for ATCOs to combat monotony and complacency.

2.7.4. HROs maintain a well-developed capability for mindfulness. A mindful ATCO catches the unexpected earlier, when it is smaller, comprehends its potential importance despite the small size of the disruption and removes the chances of the unexpected. If one is always listening for mistakes in a readback, they are bound to catch it!

2.8. Reluctance to Simplify:

2.8.1. The acceptance that the operation is complex and dynamic, with the potential to fail in new and unexpected ways. An HRO prioritises a thorough understanding while encouraging continuous learning and incorporating diverse perspectives.

2.8.2. Encouraging the reporting of errors, incidents, and problems experienced for what can be learned. Many organizations rely heavily on a Voluntary Safety Reporting Program, in which reporting of safety problems and incidents is encouraged without fear of reprisal. This is key in making any high-risk operating system safer.

2.8.3. To avoid oversimplification, it is important to thoroughly analyse or investigate accidents, incidents, and reported safety problems from all perspectives instead of devising quick, generalised, and easy answers. There are usually more factors involved in the root of a problem than is initially apparent. A thorough dive into the data can help identify hidden causes of larger issues.

2.8.4. HROs maintain a mindset of continuous learning and adaptation to evolving circumstances. It is important when investigating the root cause of an incident or safety issue to identify and understand every specific detail and avoid the easy bucket type answers such as human error, training issue, or communication problem.

2.8.5. Safety management aims to simultaneously understand how occurrences happen while also focusing on the prevention of harmful outcomes. In aviation, aircraft operators, airport operators, maintenance organisations and air navigation service providers are all part of the collective safety program. HROs implement Safety

Management Systems (SMS), as per regulations such as ICAO Annex 19, Safety Management⁶ in accordance with ICAO Document 9859, Safety Management Manual.

2.9. Sensitivity to Operations:

- 2.9.1. Heightened awareness of the state of relevant systems and processes.
- 2.9.2. At the IFATCA 53rd Conference, Spain, 2014, Just Culture Revisited, it is stated that:

ATM is a team of people who work together to make ATC safe and efficient. It is about ATCOs, Managers, Technicians, Supervisors, Assistants, Pilots, Airways, Technology, Structure, etc. that together create a safe system. Targeting individuals within the system can have consequences on many levels, but especially it will impact the willingness to share and learn from safety information.

53rd Annual Conference (Spain) Working Paper No. 163 Para 3.9

- 2.9.3. Sensitivity to operations is the ability to understand how systems and processes work together and requires situational awareness by all of the components of the system to ensure transparency, communication, and continuous learning.
- 2.9.4. Normal operations may reveal deficiencies that are “free lessons.” These deficiencies signal the development of unexpected events. When events are reported or found in an assessment of overall safety health, system users are able to learn from them and ensure they are less likely to occur again in the future. This type of learning is a key element in a successful safety management system.
- 2.9.5. HROs view near misses as opportunities to improve, rather than a sign of failure. In many air traffic safety management systems across the globe, we might recognize this concept within a positive safety culture. When you are actively looking for signs of error or potential problems, you are in essence managing risks.
- 2.9.6. Differences in sensitivity are evident in interpretations of close calls. Reliable performance decreases when close calls are interpreted as operational success. Operations are in jeopardy when their soundness is overestimated. Therefore, reliable performance increases when close calls are interpreted as indication of risk and steps are made to improve processes and procedures to prevent recurrence. (Weick, Sutcliffe, *Managing the Unexpected*)

⁶ Biedermann, M., Papatheodorou, A., Prowle, M., & Bulatovic, I. (2024). High reliability organisations in a changing world: The case of air traffic control. *Research in Transportation Business Management*, 53, 101099. <https://doi.org/10.1016/j.rtbm.2024.101099>

2.9.7. HROs place priority on safety in the operation by conducting frequent safety analysis, safety reviews, safety meetings, implementing policies, recognizing errors, learning from problems reported, and continually making improvements.

2.10. Commitment to Resilience:

2.10.1. HROs actively prepare for and adapt to unexpected situations, disruptions, or errors by having systems, procedures and a safety culture that allows for quick identification and response to issues, minimizing harm and maintaining safe operations even when facing challenges.

2.10.2. The organisation must maintain function during high demand events. Resilience has three components:

1. Absorb strain and preserve function despite adversity (stay calm)
2. Maintain the ability to return to service from unforeseen events (recover)
3. Learn and grow from previous events or episodes. (lessons learned)

HROs recognise that it's not that mistakes won't occur, but that they won't disable the system. One example of this might be a major system failure that occurred in Chicago IL, USA, in which the ANSP lost radar and radio communications due to a fire and had to rely on contingency plans and quick actions to handle the traffic, keep the airspace as safe as possible, and recover. Even when systems have redundancy, failures can occur. (G. Tokadli, A. Marzuoli and E. Boidot "Resilience of the National Airspace System")

2.10.3. In WP No. 155, 53rd Annual Conference, Spain, 2014, A Better Understanding of the Linear vs. the Systemic Approach to Safety, IFATCA Defines Safety II approach to safety as:

..A method of ensuring safety in a system, where the aim is to ensure resilience. Understanding that the system is too complex to foresee and mitigate all that might go wrong, the system needs to be engineered in such a way that the variable factor (human operators) can intervene. Safety is the ability to succeed under varying conditions. Safety II (The systemic approach to safety) requires an understanding of every day performance.

53rd Annual Conference (Spain) Working Paper No. 155 Para 3.7

2.10.4. To ensure resilience or the ability to recover in adverse situations, an organisation would need to train or prepare for unfavourable outcomes or emergencies. In a HRO, employees prioritise emergency training for many unlikely, but possible, system failures.

- 2.10.5. In a Presidential Lecture Series at Purdue University, West Lafayette, IN- USA, Capt. Chesley “Sully” Sullenberger, (Miracle on the Hudson) a speaker, safety advocate, author, and pilot described the importance of system safety. He said:

“We must prepare for the unthinkable. Successful training is knowledge combined with skill and experience. That’s what gives us the ability to be resilient. Humans have the duty of care that technology cannot feel. AI and machine learning can assist us, but humans are the most adaptable and resilient and that is why we must remain in control.”

- 2.10.6. ICAO Doc 9854, Global ATM Operational Concept, Guiding Principles states:

“Humans will play an essential and, when necessary, central role in the global ATM system. Humans are responsible for managing the system, monitoring its performance and intervening, when necessary, to ensure the desired system outcome. Due consideration to human factors must be given in all aspects of the system.”

ICAO Doc 9854, Chapter 1, 1.5.2 Guiding Principles

- 2.11. Deference to expertise:

- 2.11.1. HROs value insights from those with the most pertinent operational safety knowledge over those with administrative rolls or management titles.

- 2.11.2. Sometimes referred to as subject matter experts, HROs must empower the employees on the front lines with the most experience to share their perspectives in developing and improving processes and procedures.

- 2.11.3. IFATCA TPM 2024 has several policies which ensure that ATCOs expertise is used and remain involved in the process of testing, validating, and implementing new systems, airport infrastructure, or airspace changes as they have a greater understanding of the impact to the daily operation.

- 2.11.4. WC 10.2.11, ATM Safety Monitoring Tool (ASMT)

IFATCA Policy States:

...ATCOs shall be involved in the definition, implementation and future changes of the ASMT role.

- 2.11.5. AAS 1.13 Determining Operations Readiness of New ATM Systems

IFATCA Policy States:

Operational controllers shall be involved in the design, development and implementation of new ATM systems. Their role shall include:

Establishing user requirements.

Defining operational training requirements prior to implementation.

Participating in the risk assessment process.

Validating the system.

Providing feedback in the further development of the system.

...

2.11.6. WC 10.2.5 Automation / Human Factors

IFATCA Policy States:

Automation shall improve and enhance the data exchange for controllers. Automated systems shall be fail-safe and provide accurate and incorruptible data. These systems shall be built with an integrity factor to review and crosscheck the information being received.

The human factors aspects of Automation shall be fully considered when developing automated systems.

Automation shall assist and support ATCOs in the execution of their duties.

The controller shall remain the key element of the ATC system.

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2.11.7. WC 10.7.3 Safety Management Systems

IFATCA Policy States:

Air Navigation Service Providers (ANSPs) should be encouraged from the outset to utilise the available and current operational expertise already existing within their organisations when developing SMS.

Human Factor issues shall be accounted for in each phase of the definition, development, and deployment of new and existing ATM systems and into operational training. Controllers and human factors experts shall be involved from the beginning of any new project.

2.12. Culture of Reliability:

- 2.12.1. This sixth hallmark “Culture of Reliability” was added by Cantu & Tolk in their High Reliability Organisation Systematic literature review (2020). A culture of reliability is a mindset among employees where safety is the absolute priority, while actively seeking out potential errors, openly communicating concerns, and constantly striving to improve procedures to prevent incidents, even when no immediate danger is apparent. They communicate and share their experiences so that policies and procedures can be improved. They prioritise vigilance and learning from near misses to maintain a high level of operational reliability.
- 2.12.2. Weick and Sutcliffe in their book “Managing the Unexpected” (2009) point out that the most important thing that sets HROs apart from other companies and organisations is their collective mindfulness. They organise themselves in such a way that they are better able to notice the unexpected in the making and halt its development. This may be because the consequences of errors are undesirable outcomes and could even lead to catastrophic events. Mindful organising refers to a culture where individuals and teams actively pay attention to potential problems. Mindful organising helps the organisation maintain resilience during high risk events through anticipation and containment.
- 2.12.3. Individuals in an HRO strive to maintain a certain level of professionalism and resiliency, constantly evaluating performance and striving to improve services. This type of mindfulness exists throughout every part of the organisation. Essentially, that’s what makes it a positive safety culture. Every person involved from top tier management to administrators to operational controllers to system maintainers are all invested in a positive safety culture and a just culture.
- 2.12.4. International Civil Aviation Organisation (ICAO) and the International Federation of Air Traffic Controllers Associations (IFATCA) in concert with the International Federation of Air Line Pilots Associations (IFALPA) and other organisations have policies on Just Culture and Positive Safety Culture both being significant components of a successful Safety Management System (SMS). While not a new concept, our organisations continue to re-evaluate and improve these policies.
- 2.12.4.1. IFATCA policy on Just Culture can be found in the TPM (2024) LM 7.2.1, Just Culture, Trust and Mutual Respect.
- 2.12.4.2. ICAO Doc 9859 explains the importance of a positive safety culture and how to achieve it as required by states in Annex 19.

- 2.12.4.3. ICAO Annex 19 requires that both States and Service Providers promote a positive safety culture with the aim of fostering effective safety management implementation through the (State Safety Program) SSP/SMS. This chapter provides guidance on the promotion of a positive safety culture.
- 2.12.4.4. ICAO Annex 19 also stipulates how safety values are incorporated into practices by management and personnel directly affects how key elements of the SSP and SMS are established and maintained. As a consequence, safety culture has a direct impact on safety performance. If someone believes that safety is not that important then workarounds, cutting corners, or making unsafe decisions or judgements may be the result, especially when the risk is perceived as low and there is no apparent consequence or danger. The safety culture of an organization therefore significantly influences how their SSP or SMS develops and how effective it becomes. Safety culture is arguably the single most important influence on the management of safety.

A look at ANSP application of HRO principles

- 2.13. In a few studies, scientists have compared Air Navigation Service Providers (ANSPs) as High Reliability Organisations (HROs). Some studies have looked into what all HROs have in common. Some have defined the principles of HROs, but not many have actually laid out specific guidelines on how to operate as a HRO. In our research, we tend to ask the question: What does it take to put HRO Theory into practice and measure its success?
- 2.14. Most ANSPs have two distinct “systems” in place. When talking about safety, resilience, and high functionality, we could be referring to the operation, such as separating aircraft and keeping our airspace and systems safe. ANSPs should also have a system in place for administrative activities. These are the functions that can operate like almost any other business or organisation. They contain policies, management, human resources, and cost effectiveness. These two systems are part of one organisation but they have separate functions. (see Fig 1)
- 2.15. The things that exist within an ANSP’s organisation might include governing bodies, policies, procedures, management structure, cost/benefit analysis, human resources, resource management, safety risk management, training policies and procedures, performance indicators, and success rates (divided into administrative and operational categories). All of these components must be in place and all operating with a consistent safety first concept with the cultural hallmarks of HRO principles for any Air Navigation Service Provider to be successful. Everyone in the organisation must contribute and operate under a positive safety culture.

Figure 1.

<u>Operational</u>	<u>Administrative</u>
Technical Systems	Management
OJT- Training	Policies
Resource Mgmt	SMS (SRM, QA, Performance Mgmt)
Procedures	Cost/Revenue/Budget
Operational Oversight	Human Resources

- 2.16. As we can see in the previous discussion, ICAO, IFATCA, and many other organisations in aviation safety are aligned with the principles of an HRO. Can we say that every ANSP or Air Traffic Organisation is an HRO?
- 2.17. ANSPs reliability is a product of the implementation of all six principles of a HRO and Safety Management Systems (SMS) throughout the entire organisation. All components, both operational and administrative sides of the organisation must operate under a culture in which every individual is actively involved in prioritising safety. A strengthened safety culture is a commitment of management actively involving personnel in the management of safety risk. When management actively endorses safety as a priority, it is typically well received by personnel and becomes part of normal operations. (ICAO Document 9859, SMM)
- 2.18. So how do we measure our success as a highly reliable organisation? In a very complex and high risk operation, we can say that our reliability depends on our management of safety and continuous training. ICAO Annex 19, Safety Management outlines the standards and responsibilities for states to manage safety at state and organisational levels. ICAO Document 9859, Safety Management Manual provides detailed guidance and practical instructions on how to implement safety management practices. Within State Safety Programs, there are five (5) elements.
- 2.18.1. Safety Policy - Establishes senior management's commitment to continually improve safety; defines methods, processes, and organisational structure needed to meet safety goals. This includes a non-punitive employee reporting and resolution system.

- 2.18.2. Safety Risk Management - Determines the need for, and adequacy of, new or revised risk mitigation controls based on the assessment of acceptable risk. Any time airspace or procedure changes are introduced, they are run through a safety risk management panel to analyse risk. Hazards exist at all levels in the organization and are detectable through many sources including reporting systems, inspections, audits, brainstorming sessions and expert judgement. The goal is to proactively identify hazards before they lead to accidents, incidents or other safety-related occurrences. An important mechanism for proactive hazard identification is a voluntary safety reporting system.
- 2.18.2.1. In operational safety risk management, high reliability organisations must study consequences of past events. It is important to focus on the high risk, low frequency events. These are the things you don't see often (perhaps aircraft emergencies or equipment failures). More specifically, those events with low or no discretionary time. When there's time to think, we must slow down, take our time, and follow policy. When there's no time to think, we must prioritize those things we were trained to act on as the most important elements which prevent disaster. The more you train on these things, the more natural a proper response becomes. This is called recognition-primed decision making. When we conduct training on emergency situations, we are able to make quick, effective decisions in complex situations by relying on our past experiences and generating a course of action. (Gordon Graham, Keynote Speaker on Safety Risk Management, Communicating for Safety Conference, Las Vegas, Nevada, USA, 2018)
- 2.18.2.2. We must focus our continuous training on these types of events and lessons we learned from events or incidents with less than favourable outcomes. Collectively, these individually trained skills become our resilience as an organisation.
- 2.18.3. Safety Assurance- Evaluates the continued effectiveness of implemented risk control strategies; supports the identification of new hazards. Ensures compliance with regulatory standards, policies, and procedures.
- 2.18.4. Safety Risk Management and Safety Assurance work together to continuously monitor compliance, risk, and opportunities for improvement.
- 2.18.5. Safety Promotion- Includes training, communication, and other actions to create and promote a positive safety culture within all levels of the workforce. The organisation communicates safety lessons learned.
- 2.18.6. Safety Data Collection, Analysis, Protection, and Communication- Annex 19 requires that service providers develop and maintain a formal

process to collect, record, act on and generate feedback on hazards in their activities, based on a combination of reactive and proactive methods of safety data collection.

- 2.19. In the Global Air Navigation Plan, ICAO uses 11 Key Performance Indicators (KPIs) to measure and compare the performance of the air traffic system. KPIs are used to help decision makers prioritize and improve the traffic experience for passengers and airspace users. Appendix D of the Global Air Traffic Management Operational Concept (GATMOC) (Doc 9854) describes each of them. These performance indicators did not take human factors into consideration.
 - 2.19.1. IFATCA Annual Conference, Jamaica, 2023, WP 154, Key Performance Indicators was a paper presented by PLC to develop of a framework of KPIs by identifying performance goals from existing IFATCA Policy and produce guidance material to allow benchmarking performance between the ANSPs with the interest of protection and safe-guarding of the Air Traffic Control profession. This is an information paper and not current policy.
 - 2.19.2. IFATCA policy on Performance Indicators can be found in the TPM (2024) WC 10.1.8, Performance Indicators.

3. CONCLUSION

- 3.1. High Reliability Organisations (HROs) were originally pioneered in extremely hazardous industries where even the smallest mistakes could lead to tragic consequences. The common characteristics found in studies of HROs seem to be what sets them apart and makes them most reliable and resilient.
- 3.2. When compared with these specific characteristics as well as the key principles of a HRO, we can see how most ANSPs can be considered highly reliable.
- 3.3. The key principles of HRO Theory found in practice can also be found in various segments of IFATCA policy as well as within the ICAO Safety Management Manual and implemented in many ANSPs Safety Management Systems.
- 3.4. To achieve a highly reliable organisation, you cannot rely on just a few fragments, you must have all the characteristics and principles in place.

4. RECOMMENDATIONS

- 4.1. It is recommended that the policy LM 7.2.1 be amended as follows:

Proposal:

IFATCA's definition of Just Culture is "a culture in which front line operators and others are not punished for actions, omissions or decisions taken by them which are commensurate with their experience and training, but where gross negligence, wilful violations and destructive acts are not tolerated".

Those Member Associations under national legal frameworks where mandatory and/or voluntary incident reporting systems are not yet compulsory, are encouraged to create one provided it is based on confidential reporting; the reported data shall be protected and never be used against the reporting person nor any other person mentioned in the report and it is compliant with ICAO Doc 9859 – Safety Management Manual, 4th Ed. (2018).

Just Culture shall be in the service of safety and by no ways a means of social control or disciplinary mechanism.

IFATCA shall encourage Member Associations to urge their aviation organisations to develop a Just Culture Policy as part of a mature safety culture. This policy, supported by the highest organisational level and visibly endorsed by workforce level, should include the following elements:

- Just Culture principles ensuring fair treatment of staff at all levels (managers and employees)
- Recognition of staff at all levels for the role they play in delivering a safe service.
- Compromise to provide with the appropriate tools, training and procedures required to perform their job and guaranteeing that they would not be put in situations where safety is compromised because of organisational factors. Anyhow, systemic factors outside the scope of individuals in case of unwanted outcomes are to be considered.
- Means to constantly measure maturity and effectiveness of Just Culture within the organisation.

Any incident reporting system shall be based on the following principles:

- a) Cooperation: with all those having a legitimate and appropriate interest
- b) Dissemination: distribution of safety-related data to all those with appropriate interest.
- c) Confidentiality: for the whole procedure, guaranteed by law.
- d) Protection: for those involved or mentioned in the report, the provision of which be within the remit of an independent body.
- e) Trust and mutual respect.

Air Navigation Service Providers and their respective employee groups shall develop mechanisms that foster an environment of trust and mutual respect in order to improve the

capability to compile, assess and disseminate safety-related information with each other, as well as with other national and international aviation organizations.

Adhering to a Just Culture and fostering a Positive Safety Culture, Air Navigation Service Providers can move to align with the principles of a High Reliability Organisation minimising risk and maximising safety performance.

- 4.2. It is recommended that a new policy on High Reliability Organisation Principles is inserted into the IFATCA TPM

IFATCA TPM (NEW), WC X.X – High Reliability Organisation Principles

Proposal:

ANSPs can be defined as a High Reliability Organisation (HRO). To achieve the highest level of reliability and resilience, ANSPs should have a mature positive safety culture and a successful safety management system. To be aligned with HRO principles, an ANSP must have:

- Operations performed by a team with a hierarchical structure of supervision that serves to add redundancy.
- Tracking and reporting progress of safety performance measures
- Regulatory oversight of operations at the state or regional level
- Employment requires specialised skilled personnel that are certified by regulatory authorities and training that is continuous and specialised.
- Redundant systems with formal safety improvement programs and voluntary safety reporting programs for employees to report problems without penalty.
- Adequate funding for auditing, testing, training, and monitoring as well as ensuring redundancy of systems, staffing and structure.
- Preoccupation with failure (watching for symptoms of problems or mistakes)
- Reluctance to simplify (thorough investigations, continuous learning)
- Sensitivity to operations (awareness of systems and processes at all levels)
- Commitment to resilience (prepare for and adapt to high demand events)
- Deference to expertise (rely on experience and insights to improve)
- Culture of reliability (foster a positive safety culture)
- Safety Management System (SMS) or State Safety Program (SSP) in accordance with ICAO Annex 19, which encourages a positive safety culture throughout the entire organisation.

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