

The mitigation actions taken for the main risks identified by our SMS

At LATAM Airlines Group, we continuously strive to assure the highest levels of safety. With a mature Safety Management System (SMS), based on the concepts of the ICAO Safety Management System, LATAM Airlines Group uses different strategies to identify and to mitigate potential operational risks.

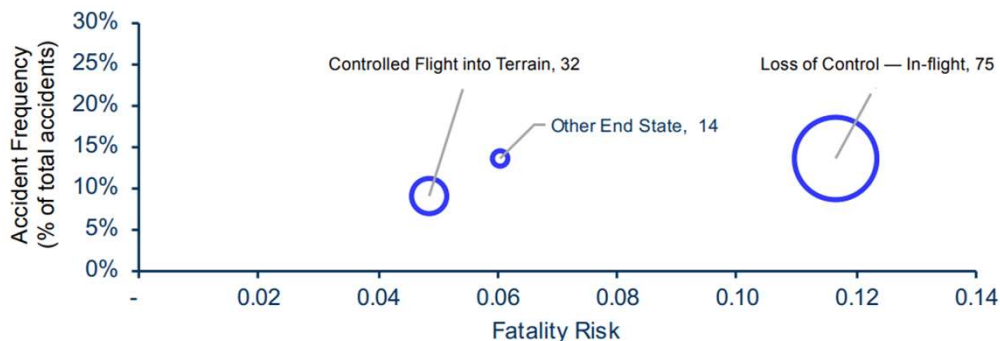
Using information from worldwide flight safety events, information shared through IATA Global Aviation Data Management (GADM) and IATA Accident Data Exchange (ADX), LATAM Airlines Group can adopt appropriate countermeasures to avoid incidents and accidents in our operations. Another important measure taken by our Safety Department is to annually review key operational risk areas, which then permit us to set priorities and reevaluate safety management system objectives.

The COVID-19 pandemic continued to disrupt air operations in all regions of the world. According to ICAO Economic Impact Analysis (2022), the COVID-19 impact on world scheduled passenger traffic for year 2021 compared to 2019 shows a reduction of 40% of seats offered by the airlines and a reduction of 2,201 million passengers (-49%).

According to the IATA 2021 Safety Report, the year of 2021 was the year with the lowest all-accident rate recorded since 2005, and the total number of accidents, fatal accidents and fatalities all declined against the five-year average. In 2021, there were 26 accidents versus 35 in 2020. The industry witnessed an improvement in the global accident rate in 2021, down from 1.58 per million sectors in 2020 to 1.01 in 2021. The full year 2021 demonstrates the lowest accident rate in the last 10 years. However, despite the good numbers in terms of safety in 2021, we cannot forget that 2021 was another very atypical year in the air transport industry due to the already mentioned

To give further details about the 2021 industry safety performance, the following graph illustrates the relationship between accident frequency and fatality risk, measured in the number of full-loss equivalents per 1 million flights. The size of each bubble represents an indication of the number of fatalities for each category (value displayed). Note: This graph does not display accidents without fatalities.

Accident Category Frequency and Fatality Risk (2021)



Accident Category Frequency and Fatality Risk 2021 (Worldwide) (IATA, 2021)

The main accidents resulting in fatalities during 2021 (worldwide) were (IATA, 2021):

1. Loss of Control — In-flight (3) with 75 fatalities
2. Controlled Flight into Terrain (2) with 32 fatalities
3. Other End State (2) with 14 fatalities

The top accident categories in 2021 (worldwide) listed by the frequency of nonfatal accidents (number of accidents in brackets) were (IATA, 2021):

1. Gear-up Landing/Gear Collapse (5)
2. Tail Strike (4)
3. In-flight Damage (3)
4. Hard Landing (2)

The performance of Safety at LATAM Airlines Group is defined in terms of achieving the Safety goals associated with its Safety Performance Indicators, or SPI. These indicators are reviewed periodically, both at a corporate and local level, in the following instances: Safety Review Board (SRB), Safety Action Group (SAG) and the Executive Committee.

In 2021, LATAM Airlines Group, through its internal Safety Department, focused on the prevention and implemented mitigations to avoid Unstable Approaches, Loss of Control in Flight (LOC-I), Runway Safety (RS) (including Runway Excursion, Hard Landing and Undershoot) and Controlled Flight into Terrain (CFIT). Other areas in-flight not necessarily confined to the cockpit were also considered, such as the accidental deployment of evacuation slides, cabin crew and passenger injuries, unruly passengers, smoke and fumes events, flight planning/weight and balance incidents and portable electronics devices (PED) incidents.

Countermeasures

As stated previously, LATAM Airlines Group has defined a series of Safety Performance Indicators (SPIs), which serve as an effective method to evaluate the Airline's safety performance and adherence to the safety objectives. The Flight Operations Safety Performance Indicator shows an improvement of 46% in comparison to the 2020 safety performance.

The continuous monitoring of these SPIs allows us to focus our attention on the performance of the organization's safety in terms of operational risk and ensuring regulatory compliance. These indicators are reviewed periodically in the Safety Action Groups, Safety Review Boards and Executive Committees, both at a corporate level, and internally within each subsidiary of LATAM Airlines Group.

Additionally, LATAM Airlines Group Safety Department continues to work on new tools to improve operational resilience, for example

SAFETY II- In 2021, several milestones were reached in the Safety II project, including the development of the entire infrastructure to integrate different databases into one big data for safety, including data from Flight Data Monitoring, Advanced Qualification Program (Flight Operations Training program), Weather Information, Maintenance reports, Flight Crew Alertness levels and other. This database currently includes more than 660 thousand flights and has the capacity to process and run analysis of approximately 600 thousand flights in just one hour. In September 2021, the project's Minimum Value Product was successfully presented, as well as operational safety analyzes correlating different variables and more than 10 dashboards for data analysis.

MHP- Mental Health Program: Program by which a pilot can get confidential help related to mental wellness problems or stress. Guarantee integral assistance to the physical and emotional health of the technical crew, with excellence and stealth, seeking the welfare of these and the safety of the operation;

Fatigue Risk Management System :The State established Prescriptive limitations remain mandatory and FRMS are optional. LATAM manages the fatigue risk within the constraints of State's prescriptive flight and duty time limitations and through the safety management processes (FRMP). The FRM processes based on reactive hazard identification (confidential safety reports, accident and incident investigations, audits, and historical rostering data), including risk assessment and implementation and monitoring of controls and mitigations


Just Culture: Focus actions on system performance and contributing factors first before consideration of individual behaviors. Provide active support to individuals involved in external investigation and proceeding.

Key Management Tools for Risk Mitigation

Flight Data Monitoring: LATAM Airlines Group boasts a Flight Operations Quality Assurance program (better known as FOQA), that allows us to compare actual flight parameters vs Standard Operating Procedures (SOPs). This critical safety program is a key element of our SMS and is crucial for identifying where safety may have been breached. It therefore provides us with very useful information to mitigate risk and prevent future case recurrences.

Line Operation Audits: Line Operational Monitoring Program (LOMP) involves a structured system that allows auditing non-technical skills during routine flight deck responsibilities. When threats and human errors are detected, these are then recorded and used for implementing counter measures to minimize risks in the future.

Training: Advanced Qualification Program (AQP) provides an enhanced curriculum development and a data-driven approach to quality assurance, along with the flexibility to target critical tasks during aircrew training. The AQP methodology is used to enhance safety by focusing on achieving the highest possible standard of individual and crew performance. In order to achieve this goal, AQP seeks to reduce the probability of crew-related errors by aligning training and evaluation requirements more closely with the known causes of human error.



Safety culture survey: LATAM Airlines Group adopted I-ASC (IATA Aviation Safety Culture Survey). The survey consists of 60 questions, which are in alignment with the four pillars of ICAO’s SMS framework and relevant IOSA Standards and Recommended Practices (ISARPs). It measures five key elements of the “James Reason” Safety Culture model: Informed Culture, Reporting Culture, Learning Culture, Just Culture and Flexible Culture. Through this channel, we can: Improve employee safety awareness, increase employee engagement and adherence to safety procedures, measure safety culture in relation to KPIs, identify safety culture gaps and address them proactively, benchmark against past performance to demonstrate safety culture improvement, addition to many other benefits

SMS report and audit control: Aviation Quality Database (AQD), is a comprehensive and integrated tool that supports the need for Safety Reporting and Quality Assurance. It allows users to report any situation where safety margins have or could be breached, as well as serves as a platform to record internal and external quality/safety audits. Through this database, corrective and preventive actions can be taken to further mitigate risk.