

LATAM Safety Management System - Mitigation Actions

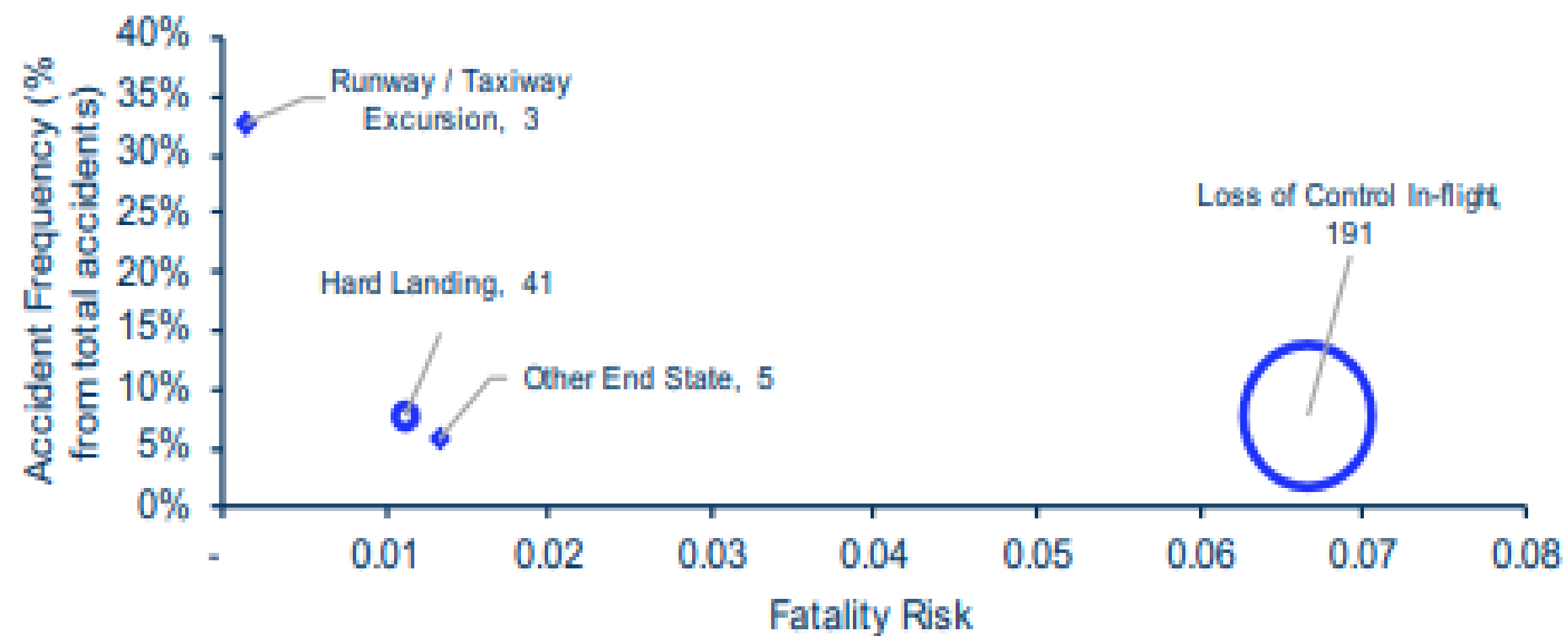
—



Safety Management System - Mitigation Actions

At LATAM Airlines Group, we continuously strive to assure the highest levels of safety. For example, one of the many actions taken by our Safety Department is to study worldwide industry cases, which then permit us to adopt appropriate countermeasures in order to avoid incidents and accidents in our operations. Another important measure taken by our Safety Department is to annually recall key operational risk areas, which then permit us to set priorities and reevaluate safety management system objectives.

According to IATA, in 2019 the number of total accidents (53) and fatalities (240) worldwide both declined compared to 2018 and to the average of the preceding five years. To further appreciate this result, 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 2019 (Worldwide) (IATA, 2019)

Safety Management System - Mitigation Actions

The main accidents resulting in fatalities during 2019 (worldwide) were (IATA, 2019):

1. Loss of Control- In-flight (4) with 191 fatalities
2. Hard Landing (1) with 41 fatalities
3. Other End State (1) with 5 fatalities
4. Runway Excursion (2) with 3 fatalities

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 in the Executive Committee.

In 2019, LATAM Airlines Group, through its internal Safety Department, focused mainly in the prevention of the following cases: Unstable Approaches, Loss of Control in Flight (LOC-I), Runway Safety (RS) (including Runway Excursion, Hard Landing and Undershoot), as well as Controlled Flight into Terrain (CFIT). Other areas in-flight not necessarily confined to the cockpit were also considered, such as accidental deployment of evacuation slides (typically caused by human error), cabin injuries (generally turbulence is regarded as the leading cause of injuries onboard aircraft in non-fatal accidents), unruly passenger reports, and portable electronics devices (PED) incidents.

Safety Management System - Mitigation Actions

Countermeasures

As stated previously, LATAM Airlines Group has defined a series of Safety Performance Indicators (SPIs), which serve as an effective method to evaluate if safety objectives and goals reflect the standards defined by the company. Monitoring these SPIs allow us to focus our attention towards the performance of the organization's safety in terms of operational risk, in addition to ensuring regulatory compliance. These indicators have a combined a target, or TLS (Target Level of Safety), which as stated previously, are reviewed periodically in the SRB, SAG and Executive Committees, both at a corporate level, and internally within each subsidiary of LATAM's group.

TLS is based on the performance of LATAM's SPI, measured as an average of the best 12 months within a period encompassing the previous 24 months. Through this target, it is possible to measure any Standard Deviation Indices for the sake of adopting relevant countermeasures depending on the appropriate Alert Level. The latter is a relationship between target (TLS) and standard deviation (SD) where three alert thresholds are defined: $TLS + 1 SD$ (Level 1), $TLS + 2 SD$ (Level 2) and $TLS + 3 SD$ (Level 3). When an alert is activated (possible risk situation or out of control values), a thorough analysis of the respective operational issue is performed, in order to determine the root cause and adopt any necessary countermeasure to address the abnormal trend.

Safety Management System - Mitigation Actions

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, in addition to many other benefits

SMS report and audit control: Aviation Quality Database (AQD), now called Rolls-Royce SMS solution, 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 serving 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.