

Common Risk and Resilience Terms

Definitions included in this Annex are sourced from ICAO Annexes and ICAO Docs. However, certain domains do not currently have established ICAO terminology for some risk management concepts, and therefore no official ICAO definitions can be attributed to them.

The IRM Study Group considered that excluding these domains/concepts would not support the objective of Integrated Risk Management (IRM), which requires a common understanding across all relevant domains. At the same time, the Study Group considered it inappropriate to introduce new definitions that have not undergone ICAO's established approval processes.

As an interim approach, this Annex includes Supplementary Meanings for concepts that do not have officially adopted ICAO definitions in the ENV and ECON domains. These supplementary meanings seek to capture the essential intent of each concept while providing sufficient flexibility to support the practical application of IRM across different domains. They are intended to facilitate a common understanding among users of this guidance document and may also serve as a starting point for future consideration of these concepts within ICAO, should the need arise. For ease of reference, supplementary meanings are displayed in *italics* and identified with an asterisk (*).

TERMINOLOGY	Safety (SAF)		Security (SEC)		Environment (ENV)		Facilitation (FAL)		Economics (EC)	
	Definition	Applicable ICAO Document	Definition	Applicable ICAO Document	Definition	Applicable ICAO Document	Definition	Applicable ICAO Document	Definition	Applicable ICAO Document
Accident* ^{46/A44}	An occurrence associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which: a) a person is fatally or seriously injured, b) the aircraft sustains damage or structural failure, c) the aircraft is missing or is completely inaccessible.	ICAO Annex 13 — Aircraft Accident and Incident Investigation, 13th Edition, effective 28 November 2024								
Causes	Actions, omissions, events, conditions, or a combination thereof, which led to the accident or incident. The identification of causes does not imply the assignment of fault or the determination of administrative, civil or criminal liability	ICAO Annex 13 — Aircraft Accident and Incident Investigation, 13th Edition, effective 28 November 2024								
Conflict zones			Airspace over areas where armed conflict is occurring or is likely to occur between militarized parties, and is also taken to include airspace over areas where such parties are in a heightened state of military alert or tension, which might endanger civil aircraft	ICAO Annex 17 — Aviation Security, 12th Edition, Chapter 3, Standard 3.1.5, Note 3 (references ICAO Doc 10084 — Risk Assessment Manual for Civil Aircraft Operations Over or Near Conflict Zones); also Doc 10351						
Consequence			A consequence is the nature and scale of the impact of the specific attack, in human, economic, political and reputational terms under a reasonable worst-case scenario.	ICAO Doc 10108 (Restricted) — Addendum to the Aviation Security Global Risk Context Statement, p. 13						
Contingency Plan			A proactive plan to include measures and procedures addressing various threat levels, risk assessments and the associated security measures to be implemented, designed to anticipate and mitigate events as well as prepare all concerned parties having roles and responsibilities in the event of an actual act of unlawful interference. A contingency plan sets forth incremental security measures that may be elevated as the threat increases. It may be a stand-alone plan or included as part of a Crisis Management Plan.	Doc 8973 — Aviation Security Manual, Restricted						
Contributing Factors	Contributing factors. Actions, omissions, events, conditions, or a combination thereof, which, if eliminated, avoided or absent, would have reduced the probability of the accident or incident occurring, or mitigated the severity of the consequences of the accident or incident. The identification of contributing factors does not imply the assignment of fault or the determination of administrative, civil or criminal liability.	ICAO Annex 13 — Aircraft Accident and Incident Investigation, 13th Edition, effective 28 November 2024								
Control			A security control is a means by which the introduction of weapons, explosives or other dangerous devices, articles or substances which may be used to commit an act of unlawful interference can be prevented.	ICAO Annex 17 — Aviation Security, 12th Edition, effective 18 November 2022, Chapter 1, p. 1-2 (Security control)			Narcotics control: measures to control the illicit movement of narcotics and psychotropic substances by air	ICAO Annex 9 — Facilitation, 17th Edition (Amendment 30), effective 10 March 2025, applicable 11 July 2025		
Crisis Management			Contingency measures implemented in response to increased threat levels as well as implementation of measures and procedures in response to the emergencies to include acts of unlawful interference	Doc 8973 — Aviation Security Manual, Restricted						
Disruption			Disruptive passenger: A passenger who fails to respect the rules of conduct at an airport or on board an aircraft or to follow the instructions of the airport staff or crew members and thereby disturbs the good order and discipline at an airport or on board the aircraft.	Doc 8973 — Aviation Security Manual, Restricted						
Emergency Plan			A plan setting forth the procedures for coordinating the response of different aerodrome agencies or services and of those agencies in the surrounding community that could be of assistance in responding to an emergency	Doc 8973 — Aviation Security Manual, Restricted						
Environment					(*)The surrounding conditions in which living organisms exist, encompassing both natural and human-made elements. It includes components such as air, water, soil, and biodiversity, which are essential for sustaining life. <i>UNESCO. https://www.unesco.org/en/quebec-to-environment</i>					
Event										
Facilitation			The efficient management of the necessary control process, with the objective of expediting the clearance of persons or goods and preventing unnecessary operational delays	Doc 8973 — Aviation Security Manual, Restricted						
Finance										
Hazard	A condition or an object with the potential to cause or contribute to an aircraft incident or accident.	ICAO Annex 19 — Safety Management, 3rd Edition (Amendment 2)			A condition, activity, substance or object with the potential to cause adverse environmental effects.	ICAO Annex 19 - Adapted from the ICAO safety definition of hazard for application to environmental protection.	Not defined but for - Deleterious effects - : "Effects that are capable of posing a hazard to the health of passengers, personnel, live cargo or on the structure of the aircraft."	ICAO Annex 9 — Facilitation, 17th Edition (Amendment 30), effective 10 March 2025, applicable 11 July 2025		
Human Factors / Human Factors Principles	The application of what we know about human beings, their abilities, characteristics and limitations, to the design of the equipment they use, environments in which they function and jobs they perform.	ICAO Doc 10159 and ICAO Doc 10151	Principles which apply to design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance	ICAO Annex 17 — Aviation Security, 12th Edition, effective 18 November 2022, Chapter 1, p. 1-2 (Human Factors principles) AND Doc 8973 — Aviation Security Manual, Restricted						
Human performance / Human performance principles	Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.	ICAO Doc 10159	Human capabilities and limitations which have an impact on the safety, security and efficiency of aeronautical operations.	ICAO Annex 17 — Aviation Security, 12th Edition, effective 18 November 2022, Chapter 1, p. 1-2 (Human performance) AND Doc 8973 — Aviation Security Manual, Restricted						

Impact

Incident

An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.

ICAO Annex 13 – Aircraft Accident and Incident Investigation, 13th Edition, effective 28 November 2024, Chapter 1, p. 1-2 (Incident) and p. 1-3 (Serious Incident)

Security Incident: A designation given to a security occurrence which affects or could affect the safety of passengers, crew, ground personnel and the general public. Security incidents are designated by a security official or manager to a reported security occurrence based on an analysis of the occurrence and a determination that additional action is required. A security incident may also result in an act of unlawful interference.

Doc 8973 – Aviation Security Manual, Restricted

"Serious Incident" is an incident involving circumstances indicating that there was a high probability of an accident and associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down,

Information

Safety data processed, organized or analysed in a given context so as to support safety management and the development of safety intelligence.

ICAO Doc 10159 p. x

Intelligence

The outcome of the systematic and structured process of collecting, analyzing and interpreting safety data and safety information which is then disseminated with the objective of supporting data-driven decision making.

ICAO Doc 9859 p. 1-1

Investigation

A process conducted for the purpose of accident prevention which includes the gathering and analysis of information, the drawing of conclusions, including the determination of causes and/or contributing factors and, when appropriate, the making of safety recommendations.

ICAO Annex 13 – Aircraft Accident and Incident Investigation, 13th Edition, effective 28 November 2024

A security investigation is an inquiry into any security incident, act or attempted act of unlawful interference against civil aviation and/or any alleged or suspected instance of non-compliance with a State's National Civil Aviation Security Programme or other legal and/or regulatory requirements pertaining to civil aviation security

Doc 8973 – Aviation Security Manual, Restricted

Likelihood

The likelihood is the probability of an attack being attempted, based on intentions and capabilities but not taking into account current security measures. The WGIR utilizes the likelihood as an indicator of threat, considering both the intent and capability of a perpetrator to carry out a threat scenario.

ICAO Doc 10108 (Restricted) – Addendum to the Aviation Security Global Risk Context Statement, p. 13

(¹)The chance of a specific outcome occurring, where this might be estimated probabilistically

IPCC, 2021, p. 2237

Mitigation

Risk mitigation is the process of incorporating defences, preventive controls or recovery measures to lower the severity and/or likelihood of a hazard's projected consequence

ICAO Doc 9859 – Safety Management Manual

Risk Mitigation – Process of incorporating defences, preventive controls or recovery measures to lower the severity and/or likelihood of a hazard's projected consequence

ICAO Doc 9859 – Safety Management Manual

Actions taken to prevent, reduce, control or offset adverse environmental impacts or risks.

ICAO Doc 9859

Occurrence

Security occurrence. Any security-related event that may result in a reduced security outcome, may increase the operational risks or endangers the safety of passengers, crew, ground personnel and the general public, or is a potential compliance breach. This includes the identification or observation of a vulnerability in the protection of civil aviation against acts of unlawful interference.

Doc 8973 – Aviation Security Manual, Restricted

An environmental event, condition or circumstance that has resulted in, or could result in, adverse environmental consequences.

Adapted from ICAO Annex 13 and Annex 19 occurrence terminology

Probability

is the likelihood that a safety consequence or outcome will occur.

ICAO Doc 9859 p.2-13

Residual Risk

The safety risk that remains subsequent to the implementation of the initial mitigation and which may necessitate additional safety risk control measures.

ICAO Doc 9859 p. 2-19

The residual risk is the overall risk of a successful attack, taking into account the likelihood and consequences of the threat scenario, and considering the remaining vulnerabilities after assuming current mitigation measures have been implemented (Addendum to the Aviation Security Global Risk Context Statement (Doc 10108-Restricted), p.13)

ICAO Doc 10108 (Restricted) – Addendum to the Aviation Security Global Risk Context Statement, p. 13

Residual Vulnerability

The residual vulnerability is the extent of the remaining vulnerabilities once the current mitigating measures have been taken into account (Addendum to the Aviation Security Global Risk Context Statement (Doc 10108-Restricted), p.13)

ICAO Doc 10108 (Restricted) – Addendum to the Aviation Security Global Risk Context Statement, p. 13

Resilience

Cyber resilience. The ability of a cyber asset to maintain critical functions under adverse conditions or stress and to recover from those adverse conditions.

Doc 10213- Global Cyber Risk Considerations

(¹)The capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation

Climate Risk Assessment, Adaptation and Resilience, p. 4 and IPCC 2018, p. 557

(¹)The ability to anticipate, absorb, adapt to and recover from economic shocks.

Inspired from OECD's approach to defining economic risk/disruptive shock/resilience

Risk

Safety risk is the predicted probability and severity of the consequences or outcomes of a hazard.

ICAO Annex 19 – Safety Management, 3rd Edition (Amendment 2), adopted 23 June 2025, effective 4 November 2025, applicable 26 November 2026, Chapter 1 - Definitions (Safety risk) – unchanged from 2nd Edition (Amendment 1, 2014)

A security risk is the level of exposure to an attack against civil aviation taking into account the likelihood, consequence and the vulnerability that remains following an evaluation of the effective implementation of the existing aviation security mitigation measures (Addendum to the Aviation Security Global Risk Context Statement (Doc 10108-Restricted), p.13)

ICAO Doc 10108 (Restricted) – Addendum to the Aviation Security Global Risk Context Statement, p. 13

The potential for adverse consequences for human or ecological systems, recognizing the diversity of values and objectives associated with such systems

Annex 2, p. 25

(¹) The possibility that internal or external factors may adversely affect the ability of air transport operators to comply with applicable ICAO and national/regional aviation requirements, and consequently for the aviation sector to achieve public policy objectives, including maintaining economic viability, air connectivity and long-term sustainability.

Inspired from OECD's approach to defining economic risk/disruptive shock/resilience

Risk Analysis

Risk Assessment			The term appears in Annex 17 in several Syndrads but no specific definition. Cyber Risk Assessment: Continuous process of cyber risk identification, analysis and evolution.	Doc 8873 — Aviation Security Manual, Restricted, Doc 10213 - Global Cyber Risk Considerations	The process of hazard identification, risk analysis and risk evaluation	ICAO Annex 9 — Facilitation, 17th Edition (Amendment 30), effective 10 March 2025, applicable 11 July 2025
Risk Factors						
Risk Management	includes hazard identification, safety risk assessment, safety risk mitigation and risk acceptance.	ICAO Doc 9859 p. 2-10	The term appears in Annex 17 in several Syndrads but no specific definition. Cyber risk management. The continuous process of identifying, mitigating, treating and monitoring cyber threats and risks, according to a risk assessment.	Doc 8973 — Aviation Security Manual, Restricted, Doc 10213 - Global Cyber Risk Considerations	The systematic application of management procedures and practices which provide border inspection agencies with the necessary information to address movements or consignments which represent a risk	ICAO Annex 9 — Facilitation, 17th Edition (Amendment 30), effective 10 March 2025, applicable 11 July 2025
Risk Matrix			Cyber risk matrix. Tool for ranking and displaying components of risks (likelihood, threat, impact/consequence and vulnerability), risk mitigations and, ultimately, the residual risks			
Risk Tolerance				Doc 10213 - Global Cyber Risk Considerations		
Root Cause Analysis						
Sabotage			An act or omission, intended to cause malicious or wanton destruction of property, endangering or resulting in unlawful interference with civil aviation and its facilities.	Doc 8973 — Aviation Security Manual, Restricted		
Safety		The state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level (Annex 19, p. 16)	ICAO Annex 19 — Safety Management, 3rd Edition (Amendment 2), adopted 23 June 2023, effective 4 November 2025, applicable 26 November 2026, Chapter 1 – Definitions (Safety) — unchanged from 2nd Edition (Amendment 1, 2016)			
Security			Aviation security. Safeguarding civil aviation against acts of unlawful interference. This objective is achieved by a combination of measures and human and material resources.	ICAO Annex 17 — Aviation Security, 12th Edition, effective 18 November 2022, Chapter 1, p. 1-1 (Aviation security)		
Serious Injury		An injury which is sustained by a person in an accident and which: a) requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or b) results in a fracture of any bone (except simple fractures of fingers, toes or nose); or c) involves lacerations which cause severe haemorrhage, nerve, muscle or tendon damage; or d) involves injury to any internal organ; or e) involves second or third degree burns, or any burns affecting more than 5 per cent of the body surface; or f) involves verified exposure to infectious substances or infectious materials. (Annex 13 to 191) The extent of harm that might reasonably be expected to occur as a consequence or outcome of the identified hazard (ICAO Doc 9859 p. 2-14)	ICAO Annex 13 — Aircraft Accident and Incident Investigation, 13th Edition, effective 28 November 2024, Chapter 1, p. 1-3 (Serious injury)			
Severity						
System		An organized, purposeful structure that consists of interrelated and interdependent elements and components, and related policies, procedures and practices created to carry out a specific activity or solve a problem.	ICAO Doc 9859 p. vii			
Threat		Threats are external situations that must be managed by the cockpit crew during normal, everyday flights.	ICAO Doc 9803 p. 2-1	A threat is the capability and intent of a perpetrator to attack civil aviation with the potential to harm life, systems, information, environment and/or property (Addendum to the Aviation Security Global Risk Context Statement [Doc 10108 Restricted], p.13)	ICAO Doc 10108 (Restricted) — Addendum to the Aviation Security Global Risk Context Statement, p. 13	(*)A potential source, event, activity or trend that may cause harm to the environment, human health, ecosystems, natural resources or environmental assets. (**)The degree to which a system, ecosystem, population or asset is susceptible to adverse environmental effects resulting from exposure to a hazard.
Vulnerability						Adapted from IPCC risk assessment and climate resilience frameworks IPCC Risk Assessment Framework