POSITIVE TAXONOMY

DEFINITIONS AND USAGE NOTES

April 2013 (1.2)

The Positive Taxonomy aims at better identifying all the technical and human factors safety nets and assessing the effectiveness of each one. It considers the human factor as a safety factor and enables recording the functioning of effective system safety nets and successful human interventions.

RECORD OF REVISIONS

Date	Version	Section	Revision
4/2013	1.2	Decision	Added usage note to “Decision to Land as Precaution” to accommodate unmanned aircraft systems.
4/2013	1.2	Soft Safety Net	Added usage note to “Visual Detection/Anticipation” to include unmanned aircraft systems sensing and detection equipment.
10/2012	1.1	Document	Formatted document and made minor editorial changes
5/2011	1.0		Document Creation

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INTRODUCTION

The International Civil Aviation Organization (ICAO) and the Commercial Aviation Safety Team (CAST), which includes Government officials and aviation industry leaders, have jointly chartered the CAST/ICAO Common Taxonomy Team (CICTT). The team was charged with developing common taxonomies and definitions for aviation accident and incident reporting systems. The common taxonomies and definitions are intended to improve the aviation community's capacity to focus on common safety issues. CICTT includes experts from air carriers, aircraft manufacturers, engine manufacturers, pilot associations, regulatory authorities, transportation safety boards, and ICAO, and members from Canada, the European Union, France, Italy, Japan, the Netherlands, the United Kingdom, and the United States. CICTT is co-chaired by a representative from ICAO and a representative from CAST.

To accomplish its objectives, CICTT has developed the following:

- International Standard for Aircraft Make, Model and Series Groupings
- International Standard for Engine Make, Model and Submodel Groupings
- Human Factors
- Aviation Occurrence Categories
    - System/Component Failure or Malfunction (Powerplant) (SCF–PP) Subcategory
- Phase of Flight

Positive Taxonomy.

It is important to note that CICTT does not expect governments, international organizations, and corporations to immediately change existing data systems or existing definitions. The intent is to provide "target" taxonomies and definitions for adoption by organizations planning for, and implementing new safety systems.

The Positive Taxonomy is a high-level categorization of positive concepts. Each concept contains a main category definition to identify the overall positive factor as well as subcategories to further define the factor and aid in analysis and coding. Positive factors make it possible to record what went right in the analysis of an occurrence. It is also possible to codify multiple positive factors within an occurrence.

The Positive Taxonomy aims at better identifying all the technical and human factors safety nets and assessing the effectiveness of each one. To summarize, it considers the human factor as a safety factor, enables recording the functioning of effective system safety nets and successful human interventions in databases. In the long term, their global analysis will represent safety indicators that will help in better assessing the effectiveness of previous safety measures with the objective of increasing the resilience of the aviation system.

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DECISION

Positive factor related to decision. Any decision taken that helped in avoiding an accident or contributed to limiting the consequences.

AVOIDANCE MANEUVER

Decision to perform an avoidance maneuver on ground or in flight after the visual detection, or detection on the Airborne Collision Avoidance System (ACAS), of the other aircraft. For example, this category also encompasses decisions to execute a taxiway excursion to avoid other aircraft.

DECISION TO GO-AROUND

The reporter decided to go-around and safely landed.

DECISION TO LAND AS PRECAUTION

This factor includes decisions to land as a precaution outside any aerodrome boundaries with or without emergency conditions. An example would be an interruption of the flight in relation to an adverse environment.

Usage Note:

- For unmanned aircraft systems, includes the decision to land outside of aerodrome boundaries, intentional controlled flight into terrain, or intentionally crashing the aircraft.

DECISION TO LAND ON AN UNEXPECTED RUNWAY

This factor includes decisions to execute landings on an unexpected surface, such as a secondary runway, a grass runway or a surface included within the aerodrome boundaries.

DECISION TO REJECT TAKEOFF

This factor includes decisions to reject a takeoff, before or after starting the takeoff roll, when a flight was canceled, postponed or delayed in order to correct a situation for a higher safety level.

This factor includes the decision to return to the departure or alternate aerodrome after a flight interruption (often during initial climb).

EXTERNAL INTERVENTION

Positive factor related to an external intervention that helped in avoiding an accident or contributed to limiting the consequences.

AERODROME INTERVENTION/ASSISTANCE

The implementation of the aerodrome emergency plan. Information provided by the Aerodrome Rescue and Fire Fighting Service (RFFS) to flight crew by radio, verbal communications or visual signs to assist the occupants of an aircraft during an emergency on the ground.

AIR TRAFFIC INTERVENTION/ASSISTANCE

Information coming from an Air Traffic Service (ATS) unit (control, Aerodrome Flight Information Service (AFIS), etc.) obtained by radio and having a safety benefit for the rest of the flight.

ASSISTANCE OF AN INSTRUCTOR/SUPERVISOR

The instructor or supervisor assists in giving the trainee (actor) a hint or the solution. This can also be done through radio communications when the persons are not physically in the same place.

PASSENGER INTERVENTION/ASSISTANCE

A person on board, not belonging to the flight crew, spontaneously helps a pilot to act or decide for a safe flight continuation.

THIRD PARTY INTERVENTION/ASSISTANCE

A person external to the aircraft spontaneously helps the pilot to act or decide for a safe flight continuation.

HARDWARE SAFETY NET

The activation of an airborne or ground-based warning system to alert the flight crew or air traffic control (ATC) to a possible breach of safety (e.g., Terrain Awareness and Warning System (TAWS) or Airborne Collision Avoidance System (ACAS) warnings for aircraft and Short Term Conflict Alert (STCA) or minimum safe altitude warning (MSAW) for ATC).

Other positive factor related to providence.

When none of the other positive factors listed above or other defenses appeared to stop the occurrence. It was providence that prevented a more serious outcome.

NOTE

Occurrences having only providence as a positive factor should be considered as serious incidents and should be investigated/analyzed in-depth.

SOFT SAFETY NET

Positive factor related to soft safety net. A soft, or human-based, safety net can be opposed to hard, or equipment-based, safety net. It encompasses the safety defenses implemented by personnel, which do not rely on specific equipment.

ACCURATE USAGE OF DOCUMENTATION

The reading and especially the interpretation of documents (like charts/maps) allows the pilot to enhance his situational awareness.

COMMUNICATIONS

Transmission of radio messages that allowed breaking a causal chain that could have probably led to an accident, with or without the regulatory phraseology.

DESIGN REQUIREMENTS

Design requirements such that the relevant part of the aviation system (aerodrome, aircraft, ATC, ground equipment, etc.) was able to perform as needed (thereby preventing a higher severity outcome).

ENGINE FAILURE ANTICIPATION

The pilot conceives and acts in order to land safely in case of an engine failure, especially on takeoff. By extension, this factor is selected to include the risk of an engine failure in flight (e.g., noncertified aircraft in GA) or on approach with a troublesome engine.

ENVIRONMENT OBSERVATION

The observation or interpretation of the environment (like landmarks) helps the front line operator to enhance his situational awareness.

LOGICAL PROBLEM SOLVING

Implementation of empirical sound reasoning, not necessarily based on an aeronautical context or on specific instructions. An example of such lateral thinking could be to call on the previous frequency when confronted with radio problems.

USE OF TRAINING INSTRUCTIONS/SOPS

In unusual circumstances, the frontline operator acts in an autonomous way and follows the SOPs learned during his initial or recurrent training.

VISUAL DETECTION/ANTICIPATION

External monitoring allowed the pilot to avoid another aircraft, an obstacle, high terrain, clouds, etc.

Usage Note:

- For unmanned aircraft systems, includes the use of external sensing or detection equipment.