RESEARCH PROJECT EASA.2022.HVP.04

REPORT ON AVIATION JOB ROLES WITH SAFETY - SECURITY INTERDEPENDENCY D-1.2

Impact of Security Measures on Safety

Research conducted by:

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CAA International Limited (CAAi) was established in April 2007 as a wholly owned subsidiary of the UK CAA. The UK Civil Aviation Authority (UK CAA) is the UK's specialist aviation regulator, directly reporting to the UK Government's Department for Transport (DfT). Through its skills and expertise, it is recognised as a world leader in its field. CAAi provides access to the UK CAA's wealth of expertise and experience within the five operating groups of the UK CAA (Safety & Airspace Regulation Group, Consumers and Markets Group, Security Group, Strategy and Policy Group and International Group). Its primary focus is providing advisory, training, examination and licencing services to agencies, fellow National Aviation Authorities and industry in over 140 countries. CAAi's work involves assessment and delivery of targeted safety, security and environmental improvements and offer unparalleled expertise stemming from insights into best practices defined by the CAA.

Apave's core business is to help companies and government services managing their technical, environmental and human risks in the areas of Oil & Gas / Nuclear / Industry / Transportation. In aviation, Apave is committed to offering a range of civil and military aviation safety services, covering oversight authority tasks, audits, technical control, training and consulting services, through specialized and dedicated entities. Apave's staff in aviation enjoy extensive knowledge of the International and European regulatory framework, with a focus on Airworthiness, Flight Operations and Safety Management Systems In 2022 Apave has strengthened its portfolio through the acquisition of Oppida a cyber-security specialist in many highly regulated domains and safety and security exposed businesses. Apave has organised its civil and military aviation risk management consulting services around a unique value proposition with a dedicated entity: Apave Aeroservices (hereafter referred to as ''Apave'') has been designated in 2009 as the Group centre of excellence to provide risk management solutions to the Aviation community, including aviation authorities, Air Operators, Industry, Maintenance Organisations (MROs - Maintenance, Repair & Overhaul) and Training Organisations.

APSS Software & Services Ltd is part of the Center for Adaptive Security Research and Applications (CASRA), which was founded in 2008. CASRA emerged from the Visual Cognition Research Group of the University of Zurich, which was founded by Adrian Schwaninger in 1999. Today, CASRA APSS has a workforce of around 35 people, comprising of psychologists, economists, computer scientists, imaging specialists, software developers, aviation security experts, and more, most of which have an academic degree. The main objective of CASRA is to increase security and facilitation at airports and other environments involving people and technology. Through their studies and research on human – machine interaction, it was identified that visual abilities and training determine largely screeners' performance. As such CASRA has been working with a number of aviation security authorities and airports on selection, training and competency assessment processes providing advisory and research as well as their solutions globally.

TABLE OF CONTENTS

ABBREVIATIONS

ACRONYM	DESCRIPTION
ACC3	Air Cargo or Mail Carrier operating into the European Union from a Third Country
AAIB	Air Accident Investigation Branch
AUI	Act of Unlawful Interference
CCTV	Closed-Circuit Television
CPSRA	Critical Part Security Restricted Area
CSD	Consignment Security Declaration
DoS	Denial of Service
DDoS	Distributed Denial of Service
EDD	Explosive Detection Dogs
FDM	Flight Data Monitoring
FOD	Foreign Object Debris
GRCS	Global Risk and Context Statement
GSE	Ground Support Equipment
HSE	Health and Safety Executive
IfS	In-Flight Supplies
SeMS	Security Management System
SoTA	State of The Art
SRA	Security Restricted Area

1. Executive Summary

Problem area

The objective of ensuring the safety of passengers, crew, ground personnel, and the general public in international civil aviation against unlawful interference is a primary focus for each Contracting State, as stated in paragraph 2.1.1 of ICAO Annex 17 on Aviation Security. Implicit in this objective is the understanding that implementing aviation security measures contributes to the overall safety of civil aviation.

While there are instances where security and safety measures overlap and complement each other in civil aviation, there are also areas where the relationship between safety and security requirements may be less evident. To gain a comprehensive understanding of the coexistence of these interdependencies, it is crucial to map out the interdependencies from both a regulatory and operational perspective and to understand areas of safety affected by security measures. This mapping process was conducted as part of Task 1.1 in the research framework.

Security measures encompass existing measures as well as those that may be implemented in response to specific threat scenarios or threat levels. The interdependencies between safety and security, along with their resulting effects (whether positive or negative), are also relevant to certain roles within the aviation industry. These interdependencies can influence personnel workload, behaviours, attitudes, and may lead to operational challenges.

In this task, the focus is on identifying the roles involved in aviation activities that encompass both safety and security functions. Additionally, it aims to highlight areas where safety and security exhibit interdependencies, further emphasising how these factors influence each other.
Task 1.2 focused on identifying and defining the job roles within civil aviation that have safety and security functions. The objective was to compile a broad list of these roles to provide a foundational understanding of the personnel involved in maintaining safety and security in aviation operations.

To achieve this, a two-pronged methodology was employed. Firstly, and building on the work already conducted in Task 1.1 of this project, an extensive analysis of relevant regulations and guidelines was conducted to identify job roles explicitly mentioned in official documentation. This regulatory analysis provided a baseline understanding of the key roles associated with safety and security.

Recognising that regulations may not capture the full extent of role engaged in safety and security, industry consultations were conducted as the second part of the methodology. These consultations provided valuable insights into additional job roles that may not be explicitly mentioned in regulations but are integral to safety and security operations in practice.

The information gathered from the regulatory analysis and industry consultations was combined, reviewed, and refined to create lists of job roles with safety or security responsibilities in civil aviation. The resulting lists were analysed to establish which of these roles had safety and security interdependencies.

It is important to note that while the provided lists are comprehensive, they are necessarily broad. They should serve as a starting point for individual entities to explore the specific roles and functions within the entity.

Job roles with safety – security interdependency

In the realm of safety and security, distinct categories of roles emerge, each with its own level of interdependence between the two domains. These categories include management roles, compliance and quality monitoring roles, training roles, operational roles, and emergency response roles. Management roles, while not directly involved in safety - security interdependence, benefit from understanding the convergence

points to engage stakeholders and develop policies. Compliance monitoring personnel might perform separate safety and security duties, but when the same qualified individuals handle both, interdependence becomes more pronounced. Similarly, training roles in aviation, where trainers can possess certifications to deliver both safety and security syllabi, contribute to a deeper comprehension of interdependency concerns. Operational roles, such as air traffic controllers, flight crew, and cabin crew, directly grapple with safety - security interplay, encountering potentially conflicting operational priorities. Emergency response roles, including law enforcement, address emergencies encompassing safety and security.

The defined job roles within aviation also have interdependencies:

- **Aircraft Safety:** Personnel responsible for various aspects of aircraft safety, aircraft design, certification, Initial Airworthiness, Continuing Airworthiness Management Organisations (CAMO), and Maintenance, Repair, and Overhaul (MRO) staff.
- **Unmanned Aircraft Systems:** Roles associated with UAS operations including emergency response manager, safety manager, security manager, compliance monitoring manager, auditor, remote pilots, and UAS support personnel.
- **Air Traffic Services:** Roles related to ATSEP, aeronautical data provision, inspectors, auditors, occurrence reporting, security manager, ATCOs training, and air traffic controllers.
- **Aerodrome/Airport Operations:** Roles encompassing aerodrome operations, maintenance, safety, and emergency response teams.
- **Air Operations:** Air carrier/air operator roles including safety managers, compliance monitoring managers, flight and cabin crew, instructors, and evaluators.
- **Ground Operations:** Roles in ground handling organisations including safety managers, cargo handlers, check-in staff, and flight operations personnel.
- **Aerodrome/Airport Operations (Security Controls and Screening):** Roles involving security screening, access control, surveillance, and emergency response.

These defined roles underline the intricate web of interdependencies between safety and security in aviation, shaping various aspects of personnel's responsibilities, training, and operational decisions.

2. Methodology

The objective of Task 1.2 is to identify the job roles within civil aviation that have both safety and security functions. To accomplish this, a methodology combining regulatory analysis and industry consultations was employed. Phase 1 of this task was the performance of the SoTA analysis using the data gathered at task 1.1 and a variety of additional regulatory guidance document including ICAO Global Risk Context Statement (Restricted), ICAO Doc 8973 (Restricted) as well as Implementing Regulation EU 2015/1998. These documents provided a foundation for understanding the key roles and responsibilities related to security within civil aviation.

To determine the specific roles and responsibilities in these entities that involve safety and security functions, we have used the ICAO Global Risk and Context Statement (GRCS) as a starting point. The GRCS offers a comprehensive list of roles that could potentially pose an inside risk to an organisation based on their tactical advantage by virtue of the security responsibilities. It is reasonable therefore to assert that this list is a reasonable summation of the roles within civil aviation that have security responsibility. This initial list has then been further developed and refined through consultation with key experts in the aviation industry and review of safety regulations.

By utilising the GRCS as a foundation, we ensure that our analysis encompasses the critical roles and functions related to security. The GRCS provides a recognised and widely accepted framework for identifying and assessing security risks within organisations. It serves as a valuable reference point to identify key roles and responsibilities that are essential for maintaining a secure operational environment.

The identification of safety areas influenced by security measures was employed to ascertain the job roles associated with each established interdependency area from task 1.1. This process was followed by the formulation of security and safety job role definitions. These steps facilitated the classification of job roles within the designated areas of interdependency in both the safety and security domains. As the job roles related to Aerodrome/airport operations, and those associated with off-airport operations, primarily pertain to security functions, particularly screening, they were presented in *Table 1 - Job Roles with Security Function.* Conversely, roles primarily dedicated to safety functions are featured in *Table 2 - Job Roles with Safety Function.* To identify these job roles, each pertinent safety regulation was reviewed, and role descriptions were extracted from the regulatory source.

It must be noted that safety regulations are much less detailed when it comes to listing job roles, compared to security regulations. Recognising that regulations alone may not encompass the entirety of job roles with safety and security functions, research was conducted including conversations with experienced professionals working across various sectors of the aviation industry.

During these consultations, valuable input was obtained regarding the specific job roles that play a role in ensuring safety and security within civil aviation. The discussions helped identify roles that may not be explicitly mentioned in regulations but are crucial for maintaining a secure and safe aviation environment.

The information gathered from both the regulatory analysis and industry consultations was then collated and reviewed. Job roles that were consistently mentioned and recognised as having safety or security functions were included in the final lists. The list was refined and categorised to provide a broad overview of the job roles involved in ensuring safety and security in aviation operations.

It is important to note that the methodology adopted for Task 1.2 aimed to capture a broad spectrum of job roles with safety and security functions but that specific job titles and functions will vary across different organisations and jurisdictions. Therefore, the provided list serves as a starting point that individual entities will need to map, to the best degree possible, the listed roles against their own unique operational context.

Overall, the methodology for Task 1.2 involved a combination of regulatory analysis and industry consultations to identify and define the job roles associated with safety and security within the aviation industry. This approach ensures, to the best extent possible, a recognizable and credible list of roles.

This was achieved through a series of undertaken activities:

- Defining all job roles with security function with description of main role function
- Identifying which of those also have safety function with brief description of the function
- Defining safety job roles not included in point a) and b) with description of main role function
- Identifying which of those also have security function with brief description of the function
- Consultation with aviation professionals
- Compilation of the list of job roles with safety and security function (job roles within the area of interdependency)

3. Context

The European Union Aviation Safety Agency (hereinafter "EASA") is an agency of the European Union, which has been given specific regulatory and executive tasks in the field of aviation safety. The Agency constitutes a key part of the European Union's strategy to establish and maintain a high uniform standard of safety and environmental protection in civil aviation at European level.

As part of the Horizon Europe Work Programme 2021-2022 on Cluster 5 Climate, Energy and Mobility, the European Commission has entrusted EASA with the management of one specific research action entitled "impact of security measures on safety".

As a result, EASA has awarded a public contract to a consortium of 3 companies:
- CAA International
- Apave Aéroservices
- CASRA

The contract details the four main tasks which are specified in order to achieve the expected outcome which is to understand the nature and extent of the interdependencies between safety and security in order to assess the impact of security measures on safety. In doing so, the research project should identify which processes and job roles are affected by safety–security interdependencies and which certification requirements and licensing activities are affected. In the medium term, safety risk management techniques that can be applied to security will produce harmonised risk assessment methods and support integrated policy and decision-making processes at national and EU level.

The project aims at developing a comprehensive knowledge base for the evaluation of the potential impact of security measures on the safety performances of aviation systems, personnel and operations, including the leading indicators for measuring such an impact (positive or negative) as well as the main factors playing a role in such security-safety dependencies.

The four main tasks are:
- Task 1: Identify the interdependencies between security and safety
- Task 2: Assessment of the impact of security measures on safety
- Task 3: Analysis of certification standards
- Task 4: Integrated risk management

4. Objective of the document

Scope

This report represents deliverable 'D1.2' of the Impact of Security Measures on Safety (EASA.2022.HVP.04). The work presented here represents the output from 'Task 1' which includes identification of job roles with safety and security function. The scope of this report is defined by task 1.1 and is limited to the entities which are within the scope of that report (see 2.3.1 of said report).

Place of the document in the overall project

This report serves as a prerequisite and an introduction for deliverables D1.3 and D2.2 which aims at providing an assessment of the impact of the security-safety interdependencies on safety. The results of task 1.1 and 1.2 will be essential to develop comprehensive knowledge base and impact assessment framework for regulators and regulated entities in task 1.3. The results of this task will be also essential to undertake a further assessment of the impact of security measures on safety in relation to specific job roles which will be undertaken in task 2.2.
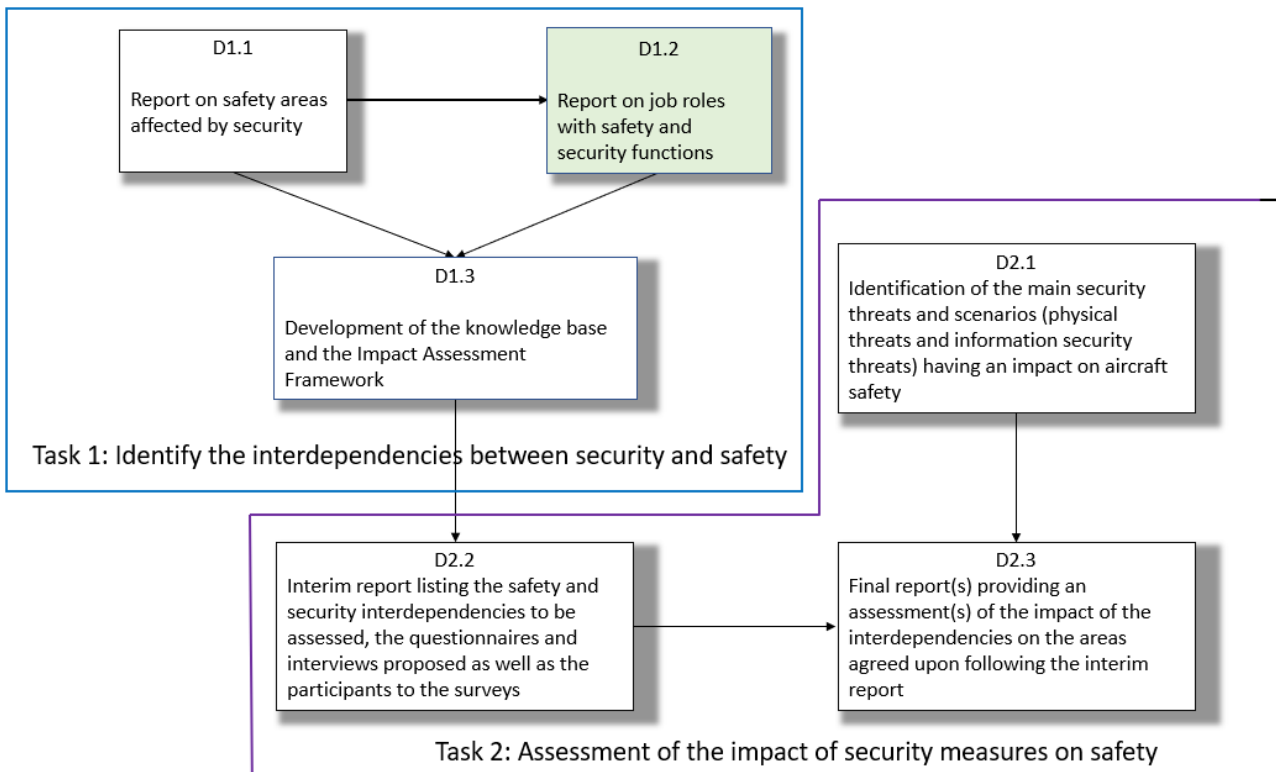
Figure 1. Place and dependencies of D1.2 report in the project

5. Introduction

Background

Following the Completion of Task 1.1 and identifying the entities that have aviation safety and security interdependencies, Task 1.2 aims to provide a comprehensive background and understanding of the interplay between safety and security in the realm of aviation activities. While safety and security are distinct concepts, they often intersect and impact each other in various aviation contexts. It is crucial to delve deeper into these interdependencies to gain insights into how security measures can impact safety and identify potential areas of conflict or challenges that may arise when addressing both aspects simultaneously. By exploring the intricate relationship between safety and security in civil aviation, Task 1.2 seeks to lay the foundation for developing effective strategies and frameworks that promote the overall well-being and protection of passengers, crew, ground personnel, and the general public in international civil aviation. Through this comprehensive background analysis, the task aims to shed light on the critical areas where safety and security converge, highlighting the importance of a holistic approach to safeguarding the aviation industry against unlawful interference while ensuring the highest levels of safety for all stakeholders involved.

General consideration

Across civil aviation, there are broad safety and security responsibilities placed on all staff, these responsibilities are sometime well articulated in job descriptions and performance objectives but are also often implicit. One such example is the requirement for individuals holding an airside pass. These individuals, who require access to restricted areas within the airport, are mandated to undergo General Security awareness training. This training equips them with the necessary knowledge and understanding of security protocols, procedures, and best practices to ensure the safety and security of aviation operations.

Additionally, if an individual has access to the movement, manoeuvring or any other operational area of an aerodrome, they are required to have received basic safety training. This training focuses on key safety measures, emergency procedures, and hazard awareness specific to the ramp environment. By receiving this training, individuals gain the necessary skills to mitigate safety risks and maintain a secure operational environment on the ramp.

The combination of General Security awareness training for airside pass holders and basic safety training for those with ramp access highlights the recognition of the interconnectedness between safety and security in aviation activities. It acknowledges that maintaining a safe environment goes hand in hand with implementing robust security measures. By integrating both safety and security training, aviation organisations ensure that individuals working in these roles are equipped to handle potential risks and contribute to the overall safety and security of the aviation industry.

A less tangible but equally important responsibility is that placed on all employees, contractors and also passengers to observe and report both safety and security lapses, concerns and incidents. This is an important overarching concept which is a vital aspect of both safety and security culture.

As it becomes evident that safety and security are closely intertwined across various roles. It is crucial to discern between roles that primarily focus on safety and those with security as their core responsibility. We have established a methodology for this determination: If a security-related task can only be performed by a specific role, such as screening, then security is considered a primary function for that role. Conversely, if a security task can be executed by multiple roles, it is deemed a secondary function, indicating that safety takes precedence in those instances. This approach allows us to recognise the interconnectedness of safety and security in aviation activities and enables us to better address the unique demands of each role in maintaining a secure and safe aviation environment.

Regulations and standards reviewed to identify safety and security job roles

- (EC) 300/2008 of the European Parliament and of the Council on common rules in the field of civil aviation security
- (EU) 2015/1998 Commission Implementing Regulation laying down detailed measures for the implementation of the common basic standards on aviation security
- ICAO Doc 10108 Aviation Security Global Risk Context Statement, Third Edition, 2022
- ICAO Doc 8973 Aviation Security Manual, Thirteenth Edition, 2022
- ICAO Annex 17 Aviation Security, Twelfth Edition, July 2022
- Regulation (EU) 2018/1139 of the European Parliament and of the Council
- Easy Access Rules for Aerodromes (Regulation (EU) No 139/2014)
- Easy Access Rules for Airworthiness and Environmental Certification (Regulation (EU) No 748/2012)
- Easy Access Rules for ATM-ANS (Regulation (EU) 2017/373)
- Easy Access Rules for Aircrew (EU) No 1178/2011
- Easy Access Rules for Air Operations (EU) No 965/2012
- Easy Access Rules for Unmanned Aircraft Systems (Regulation (EU) 2019/947 and 2019/945)
- Draft (EU)Ground Handling Regulation

The Interrelation of Task 1.2 with Task 1.1

The primary objective of the initial phase of this research was to comprehend the nature and extent of the interdependencies existing between safety and security. This understanding aimed to pinpoint the facets of safety that are influenced by security measures, thus facilitating the evaluation of the impact these measures have on overall safety.

During Task 1.1, it was ascertained that security measures indeed exert an impact on safety, with outcomes that can be either positive or negative. A comprehensive exploration was conducted to identify the safety domains that encounter the effects of security measures. These domains were systematically organised into eight key categories, closely aligned with the principal safety regulatory framework.

These key categories encompass:

- Aircraft and aircraft equipment (covering aspects like design, certification, and airworthiness)
- Unmanned Aircraft Systems
- Air Traffic Services and Management
- Aerodrome/airport operations
- Aerodrome/airport operations related to security controls, screening and screening equipment
- Air Operations
- Ground Operations
- Off-airport operations

These categories are structured to encompass both the realms of safety and security. As a result, aviation job roles naturally align with and fit into one of these designated areas. Aerodrome/airport operations related to security controls, screening and screening equipment, as well as Off-airport operations, are primarily linked to the security domain. Consequently, job roles intricately connected with these sectors predominantly focus on security-related functions. The comprehensive list and analysis of these roles are presented in the chart of section 6, titled "Job Roles with Security Function." Conversely, the remaining areas predominantly pertain to safety. As such, job roles tied to these domains are itemised in the subsequent chart within section 7, denoted as "Job Roles with Safety Functions."

6. Job Roles with Security Functions

Definition

Security job role is a role where the primary function is implementing or managing implementation of security measures defined in the national civil aviation security programme as referred to in international and national legal framework for aviation security (ICAO Annex 17, ECAC Doc 30 Part II, Common basic standards as described in Regulation (EC) No 300/2008 and Implementing Regulation (EU) No 2015/1998). A job role with a security function can be characterised as a position within an organisation or entity that directly involves activities, responsibilities, or tasks focused on implementation of security measures, protocols, and practices to protect civil aviation from acts of unlawful interference. This role typically entails safeguarding civil aviation assets, mitigating risks, implementing security strategies, and contributing to the overall protection of individuals, airports, aircrafts, information, and operations within the wider aviation system. These roles may or may not include safety related responsibilities.

Concerning the various safety domains influenced by security measures established in Task 1.1, job roles associated with both, Aerodrome/airport operations related to security controls, screening and screening equipment and off-airport operations predominantly encompass positions with security functions.

These security functions can be categorised primarily into:
- management job roles with primary function of management of security operations
- compliance monitoring job roles with primary function of compliance and quality control of security system
- training job roles with primary function of delivery of security related training
- operational roles that include all front-line staff implementing security measures as part of their daily tasks

General security awareness responsibility

It is crucial to emphasise that security standards and regulations encompass a broad scope, encompassing all persons other than passengers requiring unescorted access to security restricted areas and all individuals that require general security awareness. Required security competencies they shall acquire are defined in Regulation (EU) No 2015/1998, chapter 11. This implies that irrespective of their job description, any personnel with unescorted access to security restricted areas inherently undertakes fundamental security-related responsibilities of vigilance, reporting of suspicious behaviour and ability to respond to security breach observed within the airport perimeters. Additionally, even for those not requiring access to SRAs or CPSRAs of the airport (staff discharging their duties only on landside), vigilance, reporting of suspicious behaviour and ability to answer appropriately to security incident, remains essential. All these elements collectively contribute to development of a robust and efficient security culture. By fostering a robust and effective security culture, all job roles within the airport environment inherently shoulder security responsibilities. To enhance clarity in the following tables, safety roles for which the sole security responsibility is general awareness and contributing to the overall security culture were not individually listed, as they inherently encompass everyone working at the airport.

List of security job roles

The Following table represents the list of job roles with security functions establishing if there is a safety interdependency and the safety responsibilities associated with that security role.

Security Job role / function	Description of security function	Does this role also have a safety function?	Description of safety function
Persons implementing screening of persons, cabin baggage, items carried and hold baggage (airport screeners, security staff) (EU) 2015/1998, ICAO Doc 8973, RCS	• Screening of baggage • Hand search of baggage • Detection of prohibited articles • Appropriate operation of screening equipment • Response to emergency situations (EU) 2015/1998, 5 & 11.2.3	Yes	• Responding appropriately to detection of Dangerous Goods ICAO Doc 9284 — Technical Instructions for the Safe Transport of Dangerous Goods by Air, 4.1, Note 2, ICAO Doc 8973
Persons implementing screening of cargo and mail (screeners of cargo and mail) (EU) 2015/1998, RCS	• Screening of cargo and mail • Detection of prohibited articles • Appropriate response to detection of prohibited articles • Appropriate response to security emergencies • Protection of cargo and mail (EU) 2015/1998, 11.2.3.2	Yes	• Responding appropriately to detection of Dangerous Goods ICAO Doc 9284 — Technical Instructions for the Safe Transport of Dangerous Goods by Air, 4.1, Note 2, ICAO Doc 8973
Persons implementing screening of air carrier mail and materials, in-flight supplies and airport supplies (screeners) (EU) 2015/1998, RCS	• Screening and security controls of airport supplies • Detection of prohibited articles • Appropriate response to detection of prohibited articles • Appropriate response to security emergencies • Hand search of supplies and materials • Transport of supplies (EU) 2015/1998, 11.2.3.3	No	N/A
Personnel responsible for vehicle examination	• Examination of vehicles • Verification of appropriate authorisation	No	N/A

Security Job role / function	Description of security function	Does this role also have a safety function?	Description of safety function
	• Respond appropriately to detection of prohibited articles • Response to emergency situations		
(EU) 2015/1998, ICAO Doc 8973, RCS	(EU) 2015/1998, 11.2.3.4		
Persons implementing access control at an airport as well as surveillance and patrols (including CCTV operators)	• Protection, surveillance, patrols and access control of airside, security restricted area (SRA) and critical parts (CPSRA) • Challenging and reporting unauthorised access • Verification of appropriate authorisation • Recognition of prohibited articles and respond accordingly • Appropriate response to security emergencies • Dealing with potentially disruptive passengers (when required)	Yes	• Reporting of occurrences in accordance with requirements of Regulation (EU) No 376/2014 * Safety function of persons operating unescorted on the movement area, and other operational areas of the aerodrome, and which are related to the aerodrome operator is not specifically described in the regulations but may include requirements of Aerodrome Regulation (EU) 139/2014 and may include: • Recognition of safety hazards and risks • Reporting of safety hazards
(EU)2015/1998, ICAO Doc 8973, RCS	(EU) 2015/1998, 11.2.3.5		(EU) No 376/2014 (EU) 139/2014
Persons implementing security controls for air cargo and mail other than screening	• Challenging persons when required • Report security breaches • Identification and appropriate response to prohibited articles • Protection of cargo and mail • Transport of cargo and mail (if required)	No	N/A
(EU)2015/1998	(EU) 2015/1998, 11.2.3.9		
Persons directly supervising persons implementing security	• Conduct of supervisory tasks and internal quality control procedures • Response to detection of prohibited articles	Yes	• Responding appropriately to detection of Dangerous Goods

Security Job role / function	Description of security function	Does this role also have a safety function?	Description of safety function
controls (security supervisors) (EU)2015/1998, RCS	• Response to emergency situations • Mentoring and on-the-job training and motivating staff • Conflict resolution • Operation of screening equipment • Coach and mentor staff (on-the-job training) • Provide feedback to staff when required • Provide feedback to the head of security and aviation security instructors on the focus of future training, based on identified weaknesses in operational performance • Promote effective security culture • (EU) 2015/1998 11.2.4 & ICAO Doc 8973		ICAO Doc 9284 — Technical Instructions for the Safe Transport of Dangerous Goods by Air, 4.1, Note 2
Security managers (airport security manager, air carrier security manager, cargo security manager, in-flight supply security manager) (EU) 2015/1998, ICAO Doc 8973, RCS	• Development and maintenance of the Security Program • Ensuring national security regulatory requirements are met • Ensuring adherence to national and international quality control procedures • Motivating others • Coach and mentor staff (on-the-job training) • Provide feedback to staff when required • Provide feedback to the head of security and aviation security instructors on the focus of future training, based on identified weaknesses in operational performance • Promote effective security culture (EU) 2015/1998 11.2.5 & ICAO Doc 8973	No	N/A
Persons with roles and responsibility related to cyber threats	• Identification and protection of critical information and communications technology systems and data from cyber attacks	Yes	• Reporting of occurrences in accordance with requirements of Regulation (EU) No 376/2014 • Identification and protection of critical information and communications technology

Security Job role / function	Description of security function	Does this role also have a safety function?	Description of safety function
			systems and data from cyber attacks in accordance with the Regulation (EU) No 2023/203. Note: applicable from October 16, 2025, for organisations in the scope of the delegated act and from February 22, 2026 for all other organisations and competent authorities covered by the implementing act
(EU) 2015/1998	(EU) 2015/1998 11.2.8.1		(EU) 376/2014, (EU) 2023/203
Trainers / Instructors*	• Deliver the entity's aviation security training programme material following the requirements of the NCASTP • When appropriate, contribute to the development and maintenance of training material • Ensure trainees meet the specified standards for the role or function undertaken before being deployed unsupervised in accordance with the NCASTP • Ensure that managers/supervisors can provide effective remedial training • Remain occupationally competent by keeping their knowledge, skills and abilities up to date in both instructional techniques and subject matter • Promote an effective security culture	Yes*	*In some circumstances trainers may be also responsible for safety training. If training is provided by a contractor or external company trainers may not have any safety related functions or responsibilities. Instructor competencies are referenced in safety regulation for each specific safety area, however these do not specify their safety related function.
(EU) 2015/1998, ICAO Doc 8973, RCS	ICAO Doc 8973		
Aviation security validators	• Conduct of validation process	No	N/A
(EU) 2015/1998	(EU) 2015/1998 11.6.3		

Security Job role / function	Description of security function	Does this role also have a safety function?	Description of safety function
National inspector and auditor (EC) 300/2008, ICAO Doc 8973	• Conduct of national compliance monitoring activities (EC) 300/2008	No	N/A
Inflight security officer ICAO Annex 17	• Protecting the aircraft and its occupants against the acts of unlawful interference ICAO Annex 17	No	N/A
Personnel responsible for landside security • Law enforcement officers • airport security • airport police local or State law enforcement RCS	Responsible for surveillance and patrols of landside (risk assessment & implementation)	Yes	• May be also responsible for responding to emergency situations at the airport/ aerodrome as per requirements of (EU) 139/2014 GM3 ADR.OPS.B.005(a) Aerodrome emergency planning • May also be responsible for management of disruptive passengers. (EU) 139/2014 GM3 ADR.OPS.B.005(a)
Issuers of airport identification cards or vehicle passes (airport security unit) RCS	• Comply with regulatory requirements relating to issuance of Airport Identification Cards and Vehicle Passes (EU) 2015/1998 1.2.3 & 1.2.6	No	N/A
Threat assessors RCS	• Threat assessment	No	N/A

Security Job role / function	Description of security function	Does this role also have a safety function?	Description of safety function
RCS	• Correct collation and analysis of threat information		
Background check counter signatories RCS	• Conducting the background check (EU) 2015/1998 11.1.3	No	N/A

Table 1. Job roles with security function

7. Job Roles with Safety Functions

Safety job role is a role where the primary function is responsibility related to safe conduct of air transport activities. A job role with a safety function refers to a position within the aviation industry that is primarily responsible for activities, tasks, or responsibilities aimed at identifying, implementing, and maintaining safety measures, protocols, and practices. Individuals in such roles are focused on minimising risks, preventing accidents, ensuring compliance with safety regulations, and contributing to the overall well-being and safety of operations, personnel, passengers, and assets within the civil aviation context. These roles may or may not include security related responsibilities.

Concerning the various safety domains influenced by security measures established in Task 1.1, job roles associated with aircraft and aircraft equipment (covering aspects like design, certification, and airworthiness), UAS (in commercial UAS operation), Air Traffic Services and Management, aerodrome/airport operations, Air Operations and Ground Operations predominantly encompass job roles related to safety functions.

These safety functions can be categorised primarily into:
- management job roles with primary function of safety management
- compliance monitoring job roles with primary function of compliance and quality control of safety system and aviation safety operations
- training job roles with primary function of delivery of safety related training
- operational roles that include all front-line staff with primary role of safety of passengers, staff and the aircraft

Security function vs security responsibility

As previously outlined in *Table 1. Job roles with security function*, all persons other than passengers requiring unescorted access to security restricted areas and all individuals requiring general security awareness, irrespective of their job description, holds security-related responsibilities. Consequently, all individuals issued with airport identification cards inherently assume fundamental duties of vigilance, reporting of suspicious behaviour and ability to respond to security breach observed within the airport perimeters. Where in the below chart, the column *Does this role also have a security function?* indicates *No,* if such personnel are issued with an airport identification card, they will still have basic security responsibility as an airport pass holder.

List of safety job roles

The following table represents the list of job roles with safety functions, detailing associated security responsibilities. It is important to acknowledge that while security standards and regulations outline specific job roles and their functions, along with the required competencies, safety regulations are less detailed in their prescriptions. Safety regulations primarily refer to management roles rather than operational roles. To identify these additional safety roles, it was necessary to consult aviation professionals in relevant fields. The chart below includes job roles referenced in safety regulations and their description if provided by the regulation, while for the job roles not directly referenced by the regulations, a general description is provided based on operational experience (these sections do not include regulatory references). It must be noted that these job roles may have different names in various entities, and some roles may be part of a multi-role post. To ensure comprehensive coverage of all safety functions, safety job roles are aligned with specific safety areas identified in Task 1.1 of this research framework.

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
Aircraft Safety. Job roles associated with aircraft safety include roles within organisations responsible for various aspects of aircraft safety, such as aircraft design and certification, organisations responsible for Initial Airworthiness, Continuing Airworthiness Management Organisations (CAMO), Maintenance, Repair and Overhaul (MRO) facilities staff.			
Chief executive (CEO), Head of the design organisation (HDO), Chief of the airworthiness function, Chief of the independent monitoring function, Safety manager, staff making decisions	• Plan, perform, supervise, inspect, and monitor the organisation's activities • Making decisions affecting airworthiness, operational suitability, and environmental protection, especially those that are linked with the 21.A.263 privileges (signing documents	No	N/A

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
affecting airworthiness, compliance verification engineers, staff of the Office of Airworthiness making decisions affecting airworthiness (EU) No 748/2012	for release, approving classification of changes and repairs, and granting the approval of minor/major changes, supplemental type certificates (STCs) and minor/major repairs, granting the approval of service bulletins (SBs), and minor revisions to the aircraft flight manual) AMC1 21.A.239(d), point (c)(1)(iv)		
Production management personnel and production operational personnel (EU) No 748/2012	• Management of daily production activities • Responsibility for production management system as outlined in 21.A.139 AMC1 21.A.139(c)(3) and (4)	No	N/A
Person carrying out the inspections of parts in process (NDT personnel) (EU) No 748/2012	• Inspection of aircraft parts GM 21.A.126(b)(1)	No	N/A

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
Accountable manager (continuing airworthiness) (EU) No 1321/2014)	• Corporate authority for ensuring that all maintenance required by the customer can be financed and carried out to the standard required by the Initial Airworthiness regulation M.A.606 Personnel requirements	No	N/A
Certifying staff (maintenance engineer and compliance monitoring engineer) (EU) No 1321/2014)	• Responsible for the release of an aircraft or a component after maintenance	No	N/A
Personnel maintaining aircraft (maintenance engineer, CAMO technical personnel) (EU) No 1321/2014)	• Aircraft maintenance	Yes	• Personnel maintaining aircraft does not have direct security function, however their responsibilities may include security related duties related to aircraft protection, aircraft search and general security awareness when the tasks are completed inside SRA and CPSRA

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
Personnel performing independent inspections (inspectors, auditors) (EU) No 1321/2014)	• Compliance monitoring activities	No	N/A
Compliance manager (EU) No 1321/2014) M.A.606 Personnel requirements	• Responsibility of ensuring that the organisation is always in compliance with the requirements	No	N/A
Quality monitoring personnel (internal auditors) (EU) No 1321/2014)	• Compliance and quality monitoring activities	No	N/A
Aircraft maintenance manager, workshop manager	• Responsible for ensuring that all maintenance required to be carried out, plus any defect rectification carried out during aircraft maintenance, is carried out to the design and quality standards • Responsible for any corrective action resulting from the M.A.616 organisational review	No	N/A

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
(EU) No 1321/2014)	• Workshop manager is responsible for ensuring that all work on aircraft components is carried out to the standards specified in the regulation and also responsible for any corrective action resulting from the M.A.616 organisational review. AMC M.A.606(b) Personnel requirements		
Administrative personnel CAMO (EU) No 1321/2014)	• Management of servicing and parts documentation	Yes	• Data security (EU) 2023/203
Airworthiness review staff (EU) No 1321/2014)	• To carry out airworthiness reviews and to issue the corresponding airworthiness review certificate for aircraft for which Part-ML applies in accordance with ML.A.903 GM1 145.A.10	No	N/A
Avionics technician	• Maintenance of avionics equipment and system • Avionics upgrades	No	N/A

Unmanned Aircraft Systems. Job roles associated with Unmanned Aircraft Systems in scope of regulations (EU) 2019/947 and 2019/945. Below listed roles qualify as job roles in commercial UAS operations.

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
Accountable manger (EU) 2019/947 and 2019/945	• Ensuring that within the organisation all activities are performed in accordance with the applicable standards and that the organisation is continuously in compliance with the requirements of the management system and the procedures UAS.LUC.030	No	N/A
Emergency response manager (EU) 2019/947 and 2019/945	• Overall responsibility for emergency response AMC3 UAS.SPEC.030(3)(e)	Yes	• Typically, emergency response includes security related emergencies
Safety manager (EU) 2019/947 and 2019/945	• Facilitate hazard identification, risk analysis, and risk management • Monitor the implementation of risk mitigation measures • Provide periodic reports on safety performance • Ensure maintenance of the safety management documentation • Ensure that there is safety management training available and that it meets acceptable standards	Yes	N/A

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
	• Provide all the personnel involved with advice on safety matters • Ensure the initiation and follow-up of internal occurrence investigations • Remains the unique focal point as regards the development, administration, and maintenance of the organisation's management system AMC1 UAS.LUC.030(2)		
Operations, maintenance, training manager (EU) 2019/947 and 2019/945	• Regulation does not describe specific roles and responsibilities, however the operators should include competency, duties and responsibilities of personnel involved in the operations such as the remote pilot, UA observer, VO, supervisor, controller, operations manager in their operations manual • Responsible for crew and ground personnel training and qualifications GM1 UAS.SPEC.030(3)(e)	No	N/A

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
Security manager (EU) 2019/947 and 2019/945	• The role is listed in the regulation, however it does not describe the role and responsibilities of security manager AMC1 UAS.LUC.010(2)	Yes	• The role of security manager is not currently referred to in security standards and regulation, however by default this role holds security responsibilities
Compliance monitoring manager (EU) 2019/947 and 2019/945	• Compliance monitoring activities AMC1 UAS.LUC.030(2)(g)(v)	Yes*	• *There may be security responsibility if the compliance manager is also verifying compliance with security requirements
Auditor (EU) 2019/947 and 2019/945	• Carry out compliance audits and inspections of the LUC holder under their own responsibility GM1 UAS.LUC.030(2)(g)(v)	Yes*	• *There may be security responsibility if the auditor is also verifying compliance with security requirements
Remote pilots	• Have the appropriate competency in the subcategory of the intended UAS operations • Obtain updated information relevant to the intended UAS operation about any geographical zone published by the Member State of operation • Observe the operating environment, check the presence of obstacles and, unless operating in	Yes	• Comply with geographical zones and restrictions • Check the presence of uninvolved persons • Response and coordination with appropriate stakeholders in case of an security related emergency

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
	subcategory A1 with an unmanned aircraft referred to in points (5)(a), (5)(b) or (5)(c) of point UAS.OPEN.020, check the presence of any uninvolved person • Ensure that the UAS is in a condition to safely complete the intended flight • Verify payload • Keep the unmanned aircraft in VLOS and maintain a thorough visual scan of the airspace surrounding the unmanned aircraft • Comply with the operational limitations in geographical zones		
(EU) 2019/947 and 2019/945	UAS.OPEN.060		UAS.OPEN.060, ICAO Doc 9873
UAS support personnel including Visual Observer (VO), UA observer, launch crew, recovery crew, operations supervisor and controller	• Regulation does not describe specific roles and responsibilities; however the operators should include competency, duties and responsibilities of personnel involved in the operations such as the remote pilot, UA observer, VO, supervisor, controller, operations	Yes	• May encompass same duties as remote pilots

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
	manager in their operations manual		
(EU) 2019/947 and 2019/945	Annex A to AMC1 to Article 11, AMC1 UAS.SPEC.030(3)(e)		
UAS maintenance staff	• Staff member authorised by the UAS operator to perform maintenance activities	No	N/A
(EU) 2019/947 and 2019/945	Annex E to AMC1 to Article 11		
Air Traffic Services. Job roles associated with Air Traffic Services and Air Traffic Management organisations in scope of EASA Basic Regulation (EU) 2018/1139, Implementing Regulation (EU) 2017/373, Implementing Regulation (EU) 2015/340.			

Air traffic safety electronic personnel (ATSEP) including ATSEP instructors	• Actively control a system
	• Repair and maintain the operational systems
	• Release from, and return into operations equipment of the functional system
	• An ATSEP usually manages the engineering operation of operational systems, for example by:
	  ○ making a radiotelephony test transmission to check a voice communication and control system or a recording system
	  ○ switching between systems A and B, or
		Yes	• Security of site facilities and personnel against unlawful interference (physical and information security)
			• Appropriate actions when suspecting a security breach
			• Data security including ATM security, security of operational data
			• Recognition of software viruses, illegal broadcasts, jamming, spoofing
			• Appreciate the security threats faced by the functional system
			• Recognition of different network and physical attacks (including but not limited to DoS, DDoS, port scanning, network sniffing, tailgating, crypto-jacking)
			• Being able to identify different phases of security attack
			• Being able to detect and stop security attacks

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
	switching off the stand-by system, in case of duplicated systems o changing the range and gating maps of a radar system processor		Appendix 1a — Basic training — Shared Appendix 3a — Qualification training — Shared (EU) 2023/203
(EU) 2017/373	GM1 20		
Accountable manager (EU) 2017/373	• Ensuring that all activities can be financed and carried out in accordance with the applicable requirements ATM/ANS.OR.B.020	No	N/A
Personnel responsible for the provision of aeronautical data (EU) 2017/373	• Provision of aeronautical data and aeronautical information including originating, processing and transmitting of data Article 3 Provision of ATM/ANS and design of airspace structures	Yes	• Data security (EU) 2023/203
Inspectors, auditors (EU) 2017/373	• Compliance with the procedures the organisation has designed to ensure that services are provided with the required safety levels and quality AMC1 ATM/ANS.OR.B.005(c)	Yes*	• *There may be security responsibility if the auditor is also verifying compliance with security requirements

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
Personnel responsible for occurrence reporting (EU) 2017/373	• Coordinate actions on occurrences and to initiate any necessary further investigation and follow-up activity AMC1 ATM/ANS.OR.A.065, (EU) 376/2014	Yes	• Investigation and follow up security related occurrences in line with Occurrence Reporting Regulation (EU) 376/2014 AMC1 ATM/ANS.OR.A.065, (EU) 376/2014
Meteorological personnel (EU) 2017/373	• Provision of aeronautical meteorology GM1 ATM/ANS.OR.B.005(a)(6)	No	N/A
Management personnel in charge of safety, quality, finance and human resources-related functions (EU) 2017/373	• Ensuring that processes needed for the management system are established, implemented and maintained • Reporting to senior management on the performance of the management system and any need for improvement • Ensuring the promotion of awareness of performance and service requirements throughout the service provider and of the impact it has on safety AMC1 ATM/ANS.OR.B.020(b)	No	N/A

Job Role	Description of safety function	Does this role also have a security function?	Description of security function

Security manager (Network Manager)
 	
(EU) 2017/373
	• Responsible for security management
	   o security of facilities and personnel so as to prevent unlawful interference with the provision of services
	   o security of operational data they receive, or produce, or otherwise employ, so that access to it is restricted only to those authorised
	
	ATM/ANS.OR.D.010
		Yes	• Facilities security
			• Personnel security
			• Operational data security
			
			ATM/ANS.OR.D.010

Accountable manager (ATCO training organisation) (EU) 2015/340	• Overall accountability for ATCOs training ATCO.OR.C.010	No	N/A
Persons responsible for ATCOs training (within ATCO Training Organisations), head of the training organisation, training manager, compliance monitoring manager, chief instructor	• Responsible for training and a person or persons subordinate to him or her as chief training instructor(s)/unit responsible training officer(s) • Chef instructor responsible for training officers: o responsibility for ensuring satisfactory	Yes	• The role is not described in the regulation however ATCOs training includes security related elements

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
	training is provided and for supervising the progress of the persons undertaking training in the areas that have been delegated by the person responsible for training ○ report to the person responsible for training.		
(EU) 2015/340	GM1 ATCO.OR.C.010(b);(c)		
Air traffic controller	• Area control service • Approach control service • Aerodrome control service • Communicating critical safety information to pilots and other personnel • Reacting swiftly and effectively to any emergencies or safety incidents • Ensuring safe separation of aircraft • Guiding aircraft during take-off landing and ground movements	Yes	• Transmitting information about security threats to aircraft in flight • Monitoring and detecting possible cases on unlawful interference • Coordination and communication with different aviation stakeholders to maintain safety for those directly affected by the AUI • Protect internal systems against security threats and vulnerabilities

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
	• Communicating safety information to pilots and other personnel • Provide service continuity the face of major outages, natural disasters, civil unrest		
(EU) 2015/340	(EU) 2015/340		ICAO Doc 9985
Aerodrome / airport operations. Job roles associated with aerodrome operations (specific job roles related to ground handling are listed and described in Ground Handling section of this chart).			
Accountable manager	• Ensuring that all activities can be financed and carried out in accordance with the applicable requirements • Establishing and maintaining an effective management system	No	N/A
(EU) 139/2014	ADR.OR.D.015		
Aerodrome operations manager, airfield operations supervisor	• Responsible for the management and supervision of operational services related to apron management, should be contained in the management manual • May be holding more than one post, subject to complexity of operations	Yes	• Liaising with appropriate security departments on security related matters

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
(EU) 139/2014	ADR.OR.D.015, AMC1 ADR.OR.F.065(a)(2)		
Aerodrome maintenance manager	• Responsible for the management and supervision of maintenance of an aerodrome	Yes	• Aerodrome maintenance may include elements related to security like maintenance and repair of airport perimeter fence
(EU) 139/2014	ADR.OR.D.015		
Aerodrome safety manager	• Responsible for operation of the Safety Services Office • Manage and oversee the hazard identification • Monitor safety performance of operational units • Advise senior management on safety matters • Assist line managers • Initiate and participate in internal occurrence/incident/accident investigations	Yes	• If integrated management system in place, responsibility for security management system and investigation of reports • Security reports review and investigation, liaising with appropriate departments, entities
(EU) 139/2014	AMC1 ADR.OR.D.005(b)(1) & AMC1 ADR.OR.F.065(a)(3)		
Aerodrome operations officer (operative)	Typically, the responsibilities of aerodrome operations officer include but are not limited to[1]: • Inspections and maintaining records of all aeronautical	Yes	This role is not described in the regulatory framework, however reviewed job descriptions frequently refer to security related responsibilities, such as: • To carry out airfield fence line security patrols in line with departmental procedures • Identification of unauthorised vehicles and pedestrian entry

[1] Airport Operations Officer (Rev 1-18).pdf (revize.com), Airfield-Operations-Operative-Job-Description.pdf (glasgowprestwick.com)

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
	areas including pavement, markings, lighting, safety areas, wildlife, construction, emergency equipment, and fuelling practices • Identification of any hazard to airport operations • Maintains records of aircraft activities during assigned shift • Assists in ensuring airfield safety including but not limited to: identifying, preventing, responding to and/or removing all hazards to aviation including FOD, wildlife, incursions, unauthorised vehicles and pedestrian entry, and disabled aircraft • Carry out runway friction surveys and measurements • Providing marshalling and "follow me" lead facility upon demand • To carry out airfield fence line security patrols in line with departmental procedures • Operate and record wildlife activity		

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
Airfield maintenance operative	Typically, the responsibilities of airfield maintenance operative include but are not limited to[2]: • Maintenance of the airfield, roads and tracks • Carry out all airfield remedial works and new works • Assist in any repairs and maintenance works on various facilities and roads	Yes	• Aerodrome maintenance may include elements related to security like maintenance and repair of airport perimeter fence
Aircraft recovery specialists	• Aircraft recovery	No	N/A
Environmental officer	• Liaising with environmental protection authorities • Ensure environment protection requirements are adhered to	No	N/A
Grounds keeper	• Maintenance of airside grounds	No	N/A
Risk assessors	• Identification of safety related hazards • Conducting risk assessments	Yes	• Risk assessment (physical threat) • Risk assessment (cyber threats) (EU) 2023/203
Runway visual range readers (small to medium-size aerodromes, could be	• Provide visual range reading	No	N/A

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[2] Airfield Maintenance General Operative | Mitie

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
ATM or Ground Operations role)			
Telecommunications officer	• Responsible for various telecommunications systems such as local area network	Yes	• Ensuring communications security and network integrity (EU) 2023/203
Emergency Response Team (Emergency services including fire & ambulance)	• Response to emergencies as per emergency response plan and requirements of Aerodrome Regulation	Yes	• Emergency response includes security related emergencies ICAO Doc 8973
Air Operations. Job roles associated with air operations typically include air carrier/air operator job roles.			
Accountable manager (EU) 965/2012	• The overall responsibility for running the organisation GM1 ORO.GEN.210(a)	No	N/A
Safety manager (also SMS manager in IOSA standards)	• Facilitate hazard identification • Risk analysis and management • Monitor the implementation of actions taken to mitigate risks, as listed in the safety action plan • Provide periodic reports on safety performance • Ensure maintenance of safety management documentation	Yes*	• *Where the integrated safety/security management system is in place, safety manager may be responsible for the promotion of an effective safety and security culture, and the initiation and follow-up of internal occurrence/ accident investigations related to security events

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
(EU) 965/2012, IOSA Standards Manual (ISM), ORG 1.1.4	• Ensure that there is safety management training available and that it meets acceptable standards • Provide advice on safety matters • Ensure initiation and follow-up of internal occurrence/ accident investigations AMC1 ORO.GEN.200(a)(1)		
Compliance monitoring manager (also Quality Assurance Manager) (EU) 965/2012, IOSA Standards Manual (ISM), ORG 2.1.2	• Ensure that the activities of the operator are monitored for compliance with the applicable regulatory requirements • Any additional requirements as established by the operator are carried out properly under the supervision of the relevant head of functional area • Ensuring that the compliance monitoring programme is properly implemented, maintained and continually reviewed and improved AMC1 ORO.GEN.200(a)(6)	Yes*	• *Where compliance monitoring manager is also responsible for compliance with security standards and regulations
Flight data monitoring programme manager	• Responsible for taking appropriate and practicable safety action within a	No	N/A

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
(EU) 965/2012	reasonable period of time that reflects the severity of the issue identified through FDM AMC1 ORO.AOC.130		
FDM team – Team leader (EU) 965/2012	• The team leader acts independently of others in line management to make recommendations that will be seen by all to have a high level of integrity and impartiality. The individual requires good analytical, presentation and management skills GM1 ORO.AOC.130	No	N/A
FDM team - Flight operations interpreter (EU) 965/2012	• Usually a current pilot (or perhaps a recently retired senior captain or instructor), who knows the operator's route network and aircraft. This team member's in-depth knowledge of SOPs, aircraft handling characteristics, aerodromes and routes is used to place the FDM data in a credible context GM1 ORO.AOC.130	No	N/A
FDM team – Technical interpreter	• Interprets FDM data with respect to the technical aspects of the aircraft	No	N/A

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
(EU) 965/2012	operation and is familiar with the power plant, structures and systems departments' requirements for information and any other engineering monitoring programmes in use by the operator GM1 ORO.AOC.130		
FDM team - Gate-keeper (EU) 965/2012	• Provides the link between the fleet or training managers and flight crew involved in events highlighted by FDM • The only person permitted to connect the identifying data with the event GM1 ORO.AOC.130	No	N/A
FDM team – Engineering technical support (EU) 965/2012	• Usually an avionics specialist, involved in the supervision of mandatory serviceability requirements for FDR systems GM1 ORO.AOC.130	No	N/A
FDM team - Replay operative and administrator (EU) 965/2012	• Responsible for the day-to-day running of the system, producing reports and analysis GM1 ORO.AOC.130	No	N/A

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
Emergency Response Manager IOSA Standards Manual (ISM), ORG 1.7.2	• Manage and be responsible for the development, implementation, and maintenance of the corporate Emergency Response Plan IOSA Standards Manual (ISM), ORG 1.7.2	Yes	• Response to security related emergencies IOSA Standards Manual (ISM)
Flight crew members (Pilot in command, Second in command, flight engineer, flight navigator) (EU) 965/2012 IOSA Standards Manual (ISM), FTL 1.3.6, 1.5.3, 3.3.7	• Charged with duties essential to the operation of an aircraft during a flight duty period; • 'Pilot-in-command' is the pilot designated as being in command and charged with the safe conduct of the flight, the 'commander' (EU) 965/2012, Definitions	Yes	• Implement aircraft protection and aircraft sealing procedures • Implement aircraft search procedures (where applicable) • Contribute to robust and resilient security culture by being vigilant and reporting suspicious activity including insider threat • Respond appropriately to security related incidents and emergencies onboard the aircraft • Identify prohibited articles concealed on the aircraft • Protect the flight crew compartment • Handling of potentially disruptive passengers • Handling persons authorised to carry firearms (EU) 2015/1998 11.2.3.11
Flight crew instructors, evaluators, line checkers (EU) 965/2012 IOSA Standards Manual (ISM), FTL 1.5.5	• Aircraft operation and instructing	Yes	• Same as Flight crew members (EU) 2015/1998 11.2.3.11

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
Cabin Crew member (EU) 965/2012 IOSA Standards Manual (ISM), CAB 1.2.4	• A person assigned by an operator to perform duties related to the safety of passengers and flight during operations on board an aircraft (EU) 965/2012, Definitions	Yes	• Implement aircraft protection and aircraft sealing procedures • Implement aircraft search procedures (where applicable) • Contribute to robust and resilient security culture by being vigilant and reporting suspicious activity including insider threat • Respond appropriately to security related incidents and emergencies onboard the aircraft • Identify prohibited articles concealed on the aircraft • Protect the flight crew compartment • Handling of potentially disruptive passengers • Handling persons authorised to carry firearms (EU) 2015/1998 11.2.3.11

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
Senior cabin crew member	• A person assigned by an operator to perform duties related to the safety of passengers and flight during operations on board an aircraft, • Responsible to the commander for the conduct and coordination of normal and emergency procedures specified in the operations manual, including for discontinuing non-safety-related duties for safety or security purposes • Pre-flight briefing of crew, review of operator requirements and legal requirements • Accident and incident reporting	Yes	• Same as for cabin crew members, additionally • Responsible to the commander for the conduct and coordination of normal and emergency procedures specified in the operations manual, including for discontinuing non-safety-related duties for safety or security purposes
(EU) 965/2012	ORO.CC.200		(EU) 2015/1998 11.2.3.11, (EU) 965/2012, ORO.CC.200

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
Cabin Crew instructors/evaluators/ line checkers (EU) 965/2012 IOSA Standards Manual (ISM), CAB 2.1.6	• Additionally, to all responsibilities of cabin crew, delivery of relevant safety training as specified by Annex V (Part-CC) of Regulation (EU) 965/2012 and to Regulation (EU) No 1178/2011 where applicable ORO.CC.115	Yes	• Additionally, to all responsibilities of cabin crew, delivery of relevant security training as specified by Implementing Regulation (EU) No 2015/1998 (EU) 2015/1998 11.2.3.11
Ground operations. Job roles associated with aerodrome operations typically including Ground Handling organisations. This roles in the current regulatory framework are conducted on behalf and under legal responsibility of the air carrier. Considering Draft EU Ground Handling Regulation and separate area of safety as outlined in Task 1.1 of this research, job roles related to Ground Handling (ground operations) are included in the section below.			
Accountable manager Draft (EU) Ground Handling Regulation	• Accountability and authority to ensure that all activities can be financed and carried out in accordance with relevant regulations • Responsible for establishing and maintaining an effective management system • ORGH.MGMT.210	No	N/A
Safety manager	• Act as a focal point for the safety aspects of the GH activities, as per ICAO Doc 9859 (Ch. 9.3.6)	Yes*	• *If integrated management system in place, responsibility for security management system and investigation of reports • *Security reports review and investigation, liaising with appropriate departments, entities

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
	• Monitor safety concerns in aviation industry • Coordinates and communicates with the competent authority • Facilitate hazard identification, risk analysis and management • Monitor and manage the implementation of actions taken to mitigate risks, as listed in the safety action plan • Provide periodic reports on safety performance • Ensure maintenance of safety management documentation • Ensure that there is safety management training available and that it meets acceptable standards • Provide independent advice on safety matters • Ensure initiation and follow-up of internal occurrence investigations AMC1 ORGH.MGMT.210(a)(2)		
Draft (EU) Ground Handling Regulation			
GH operational personnel	• Supervising GH activities (incl. aircraft handling and/or passenger handling)	Yes	• Regulatory framework does not refer to specific security function however security training is listed as essential element of the required training

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
(job roles in this category may include: Cargo loader, cargo and mail handling staff, baggage handlers, check-in staff, in-flight supplies loader, refueller, dispatcher)	• Load control: load planning, mass & balance calculations, loadsheet production • Passenger services: pax & bag acceptance*, boarding / gate services • Aircraft loading/ unloading GSE operator (passenger boarding bridge, potable water services, toilet services, catering trucks) • Aircraft movement (towing, pushback) • Sort & prepare baggage, cargo, mail • Ramp turnaround • Fuelling operations • Cargo operations • De-icing/anti-icing operations • Personnel supervision in various areas (Ramp activities, passenger handling activities) *Passenger acceptance may also include delegated responsibility for identification and handling of potentially disruptive or unruly passengers as per Regulation (EU) 965/2012		• As a minimum security training will include requirements of Implementing Regulation (EU) 2015/1998 chapter 11 for persons with unescorted access to security restricted areas • Additionally, when loading and unloading the aircraft GH operational staff may be responsible for aircraft search or aircraft protection • Baggage reconciliation

Job Role	Description of safety function	Does this role also have a security function?	Description of security function
Draft (EU) Ground Handling Regulation	GM3 ORGH.TRG.100		AMC1 ORGH.TRG.100, (EU) 2015/1998 11
Flight Operations Officer (FOO), Flight Operations Assistant (FOA), Flight dispatch (dispatcher)	• Engage in the control and supervision of flight operations, who is suitably qualified, who supports, briefs or assists, or both, the pilot-in-command in the safe conduct of the flight • Flight-following, flight-monitoring, or flight-watch activity	Yes	• Recognition and application of appropriate procedures relating to unlawful interference and sabotage of aircraft • Other security responsibilities of GH operational staff
(EU) 965/2012 IOSA Standards Manual (ISM), FLT 2.2.15, DSP 3.1.3B, DSP Table 3.1	(EU) 965/2012 Definitions, AMC2 ORO.GEN.110(f), GM28 Annex I Definitions for terms used in Annexes II to VIII		ICAO Annex 1, AMC1 ORGH.TRG.100, (EU) 2015/1998 11
Marshaller	• Providing standard marshalling signals to aircraft in a clear and precise manner	No	N/A
(EU) No 923/2012	(EU) No 923/2012		

Table 2. Job roles with safety function

8. Summary of job roles with safety and security function

For the purpose of our analysis in this project, we are using the term "job roles" interchangeably with the concept of "responsibilities." In other words, when we refer to job roles, we are considering the specific responsibilities associated with those roles within the aviation industry.

In the context of safety and security, job roles encompass a range of duties, tasks, and actions that individuals are responsible for in their respective positions. These responsibilities may include implementing safety or security protocols and standard operating procedures, conducting security assessments, monitoring compliance with regulations, responding to emergencies, and ensuring the overall well-being of personnel, passengers, and assets.

By examining job roles as responsibilities, we are acknowledging the comprehensive nature of the tasks performed by individuals in the aviation industry. This approach allows us to assess the interdependencies between safety and security at a granular level, understanding how different responsibilities contribute to the overall safety and security framework.

We recognise that job roles in the aviation industry often involve a combination of safety and security responsibilities. By focusing on responsibilities, we can gain a deeper understanding of how these two domains intersect and influence one another. It allows us to identify the shared functions and obligations that contribute to maintaining a secure and safe aviation environment.

Therefore, when we refer to job roles within the scope of this project, we are emphasising the responsibilities associated with those roles, highlighting their significance in promoting safety and security within the aviation industry.

Different categories of roles in managing safety – security interdependency

Examining the various roles encompassed within the realms of safety and security, it becomes evident that distinct categories emerge:

- management roles
- compliance and quality monitoring roles
- training roles
- operational roles
- emergency response roles (predominantly law enforcement and emergency services)

These categories house intricacies of safety-security interdependence, often necessitating individuals to assimilate knowledge from both domains. The degree to which this interdependence is managed, however, varies across these roles.

Management roles. Within management roles, individuals like accountable managers and their managerial counterparts might not directly engage with safety - security interdependence, but understanding and awareness regarding the points of convergence could be beneficial. Regulations specify management areas, like safety manager, or security manager. This knowledge would empower them to engage pertinent stakeholders, deliberate on mutual impacts in management forums, and support development of policies and procedures that would facilitate management of interdependencies.

Compliance monitoring personnel. Compliance monitoring personnel might execute their duties separately for safety and security. Nevertheless, there's potential for overlap, especially if the same qualified personnel undertake both safety and security compliance functions. In cases where audits for safety and security are distinct, interdependency might be limited. However, when these responsibilities are assumed by the same personnel, interdependent aspects become more pronounced.

Training roles. A similar dynamic can be observed in training roles within each domain. Aviation trainers who deliver safety training might also hold certifications to impart security syllabi. In such instances, trainers gain deeper insights into operational safety-security interdependencies. Their engagement with operational staff enhances their comprehension of interdependency concerns and the affected domains.

Operational roles. Operational roles, the keystone of safety and security interdependence in aviation, denote positions directly engaged in implementing safety and/or security protocols, occasionally both. Examples encompass air traffic controllers, flight crew or cabin crew, dispatchers or screeners. These roles are at the forefront of safety-security interplay, confronting daily encounters with potentially conflicting priorities in operational contexts. The efficacy of the procedural framework, managerial choices, supervisory quality, and training received, collectively shape operational decisions. Operational staff translates theoretical guidelines from security and safety operations manuals and training sessions into practical applications. In the safety areas affected by security, specified in task 1.1, operational personnel frequently navigate between diverse procedural sets (safety and security) and often consult distinct manuals, merging these elements in their daily operations.

Emergency response roles. These job roles typically will include law enforcement or other entities responsible for emergency response. Typically, entities providing services in civil aviation will have to establish emergency response plans. Depending on size of the entity they may include emergency response manager, otherwise the emergency response will be assured through cooperation with local law enforcement and emergency services. Typically listed emergencies include safety emergencies relevant to specific area of operations but they also include security related emergencies like unlawful interference or sabotage.

The list of civil aviation job roles that have defined Interdependencies

Aircraft Safety. Job roles associated with aircraft safety include roles within organisations responsible for various aspects of aircraft safety, such as aircraft design and certification, organisations responsible for Initial Airworthiness, Continuing Airworthiness Management Organisations (CAMO), Maintenance, Repair and Overhaul (MRO) facilities staff.

- Personnel maintaining aircraft (maintenance engineer, CAMO technical personnel)
- Administrative personnel CAMO

Unmanned Aircraft Systems. Job roles associated with Unmanned Aircraft Systems in scope of regulations (EU) 2019/947 and 2019/945. Below listed roles qualify as job roles in commercial UAS operations.

- Emergency response manager
- Safety manager
- Security manager
- Compliance monitoring manager
- Auditor
- Remote pilots
- UAS support personnel including Visual Observer (VO), UA observer, launch crew, recovery crew, operations supervisor and controller

Air Traffic Services. Job roles associated with Air Traffic Services and Air Traffic Management organisations in scope of EASA Basic Regulation (EU) 2018/1139, Implementing Regulation (EU) 2017/373, Implementing Regulation (EU) 2015/340.

- Air traffic safety electronic personnel (ATSEP) including ATSEP instructors
- Personnel responsible for the provision of aeronautical data
- Inspectors, auditors
- Personnel responsible for occurrence reporting
- Security manager (Network Manager)
- Persons responsible for ATCOs training (within ATCO Training Organisations), head of the training organisation, training manager, compliance monitoring manager, chief instructor
- Air traffic controller

Aerodrome / airport operations. Job roles associated with aerodrome operations (specific job roles related to ground handling are listed and described in Ground Handling section of this chart).

- Aerodrome operations manager, airfield operations supervisor
- Aerodrome maintenance manager
- Aerodrome safety manager
- Aerodrome operations officer (operative)
- Airfield maintenance operative
- Risk assessors
- Telecommunications officer
- Emergency Response Team

Air Operations. Job roles associated with air operations typically include air carrier/air operator job roles.
- Safety manager
- Compliance monitoring manager
- Emergency Response Manager
- Flight crew members (Pilot in command, Second in command, flight engineer, flight navigator)
- Flight crew instructors, evaluators, line checkers
- Cabin Crew member
- Senior cabin crew member
- Cabin Crew instructors/evaluators/ line checkers

Ground operations. Job roles associated with aerodrome operations typically including Ground Handling organisations. This roles in the current regulatory framework are conducted on behalf and under legal responsibility of the air carrier. Considering Draft EU Ground Handling Regulation and separate area of safety as outlined in Task 1.1 of this research, job roles related to Ground Handling (ground operations) are included in the section below.

- Safety manager
- GH operational personnel
    - Cargo loader
    - Cargo and mail handling staff
    - Baggage handlers
    - Check-in staff
    - In-flight supplies loader
    - Refueller
- Flight Operations Officer (FOO), Flight Operations Assistant (FOA), Flight dispatch (dispatcher)

Aerodrome/airport operations related to security controls, screening and screening equipment and off-airport operations. Job roles associated with this area have primarily security function at the airport or off-

airport. This includes companies employing screeners to provide screening of passengers baggage but also In-flight supplies or regulated Agents screening goods that will be delivered to the aircraft.

- Airport screeners, security staff - persons implementing screening of persons, cabin baggage, items carried and hold baggage
- Screeners of cargo and mail
- Persons implementing access control at an airport as well as surveillance and patrols (including CCTV operators)
- Security supervisors
- Persons with roles and responsibility related to cyber threats
- Trainers / Instructors (if also delivering safety training)
- Law enforcement responsible for landside security but also emergency response

9. Conclusion

In Task 1.2, it is crucial to shift the focus from specific job roles to the responsibilities associated with those roles in civil aviation. While job roles provide a general framework, they often encompass a wide range of responsibilities that involve both safety and security functions. By examining the responsibilities within these roles, we can gain a deeper understanding of the interdependencies and the shared nature of safety and security within aviation activities.

Responsibilities within civil aviation encompass a diverse range of tasks, actions, and decision-making processes that contribute to the overall safety and security of operations. These responsibilities go beyond the formal job titles or roles assigned to individuals. They involve taking proactive measures to prevent incidents, identifying potential risks, and responding effectively in emergency situations. In many cases, these responsibilities require individuals to address both safety and security concerns simultaneously, as the two aspects are closely intertwined.

For instance, individuals who hold airside passes and have access to restricted areas of an airport have the responsibility of undergoing General Security Awareness Training. This training equips them with the knowledge and skills to recognize security threats, report suspicious activities, and maintain the security of the airport premises. Similarly, those with access to the ramp, where aircraft are loaded and unloaded, are required to receive basic safety training to ensure they understand and adhere to safety protocols while performing their duties.

The job roles associated with different aspects of aviation safety and security are diverse and cover various organisational functions that can be classified into management roles, compliance and quality monitoring roles, training roles, operational roles and emergency response roles. Furthermore, these roles are visible across all safety security areas identified in Task 1.1. To appropriately classify the job roles it was necessary to establish a definition of security job role and safety job role.

The size of an entity within the aviation industry plays a significant role in determining the distribution of responsibilities related to safety and security functions. Larger entities, such as major airlines or international airports, often have dedicated departments or teams specifically responsible for safety and security. These entities have the resources and organisational structure to assign distinct roles and responsibilities to different individuals or groups.

In such larger entities, safety and security functions are typically segregated to ensure specialised attention and expertise. Safety-related responsibilities may be handled by safety managers or officers who focus on implementing safety protocols, conducting risk assessments, and monitoring compliance with safety regulations. On the other hand, security-related responsibilities may be assigned to security managers or

officers who oversee access control, surveillance systems, threat assessments, and emergency response planning.

In contrast, smaller entities, such as regional airports or local airlines, may not have the same level of resources or capacity to maintain separate safety and security departments. In these cases, the responsibilities for safety and security functions might be consolidated, and individuals may have to take on multiple roles to fulfil both aspects.

In smaller entities, employees often have a broader scope of responsibilities, where individuals may need to address both safety and security concerns simultaneously. For example, an employee working at a smaller airport might be responsible for conducting safety inspections, implementing security measures, and coordinating emergency response actions, all within a single role. This multi-tasking approach is often necessitated by limited staffing and resources.

While the distribution of responsibilities may differ based on entity size, it is essential to emphasise that regardless of the entity's scale, safety and security should always remain integral components of their operations. The specific roles and responsibilities assigned to individuals or teams may vary, but the overarching goal of ensuring the safety and security of personnel, passengers, and assets remains constant.

Overall, the size of an entity within the aviation industry has a direct impact on how safety and security responsibilities are structured and assigned. Larger entities tend to have dedicated personnel or departments for safety and security, whereas smaller entities may require individuals to take on multiple roles to address both aspects. Regardless of the entity's size, maintaining a comprehensive approach to safety and security is crucial to safeguarding the aviation environment.

In addition to the size of the operation, it is important to acknowledge the implementation of Safety Management Systems (SMS) and Security Management Systems (SeMS) is a significant differentiator in the roles and responsibilities within an organisation. Specifically, the safety and security maturity of an organisation has a bearing on the extent to which safety and security risks are being identified and mitigated in a holistic manner. An organisation with a mature safety and security culture will most likely have a sophisticated approach to risk management where safety and security risks feature in a combined risk register, giving the organisation a holistic risk picture. Organisation with a less mature safety and security culture are less likely to take such an approach and are more likely to take a more siloed approach treating each as a discreet function. The relationship between SMS and SeMS, safety and security culture will be further explored in deliverable 1.3.

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