Thank you all for attending

The Webinar will start shortly

There will be opportunities throughout the presentation to ask the panel questions

Questions should be logged using the Slido button

This webinar is being recorded and will be published on the EASA website

Welcome to our Project Update on:

Impact of Security Measures on Safety

Welcome from EASA

Research project: Impact of Security Measures on Safety

Importance of <u>understanding</u> interdependencies

Your views and expertise are needed

Thank you and stay connected!

Agenda

- Project overview: reminder of scope & purpose

- Task updates
  - Progress to date and documents created and published
  - Impact Assessment methodology
  - Upcoming activity and expected outputs

- Q&A session after each task update

- Conclusion and next steps

Aims and Objectives

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 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 main output is 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.

Project team

- The consulting and training arm of the UK CAA
- Kevin Sawyer - Technical Lead
- Sarah Fox - Project Manager
- Dorota Broom - Lead for Tasks 1 & 4
- Stuart Coates - Communications Lead

- Apave Group centre of excellence for risk and safety management solutions to the civil and military Aviation community
- Jacques Bernardi – Lead for Task 2
- Ivan Volpoët- Technical Expert
- Lucas Lempereur de Saint Pierre – Subject Matter Expert
- Ivan Pastorelli – Subject Matter Expert

- Centre for Adaptive Security Research and Applications
- Sarah Merks – Lead for Task 3
- Adam Troczynski – Technical Expert

Delivery Schedule
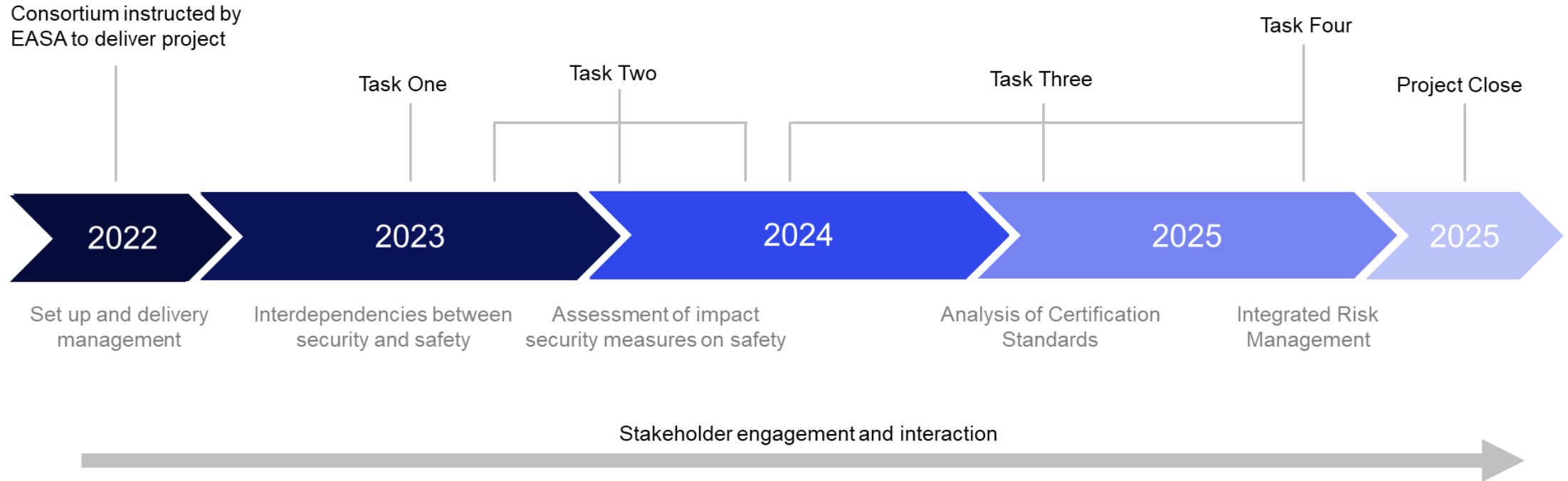
Task 1
Identifying safety/security dependencies

Aircraft Safety

- Aircraft design and certification
- Aircraft systems and system security (cyber security) including information security
- Air carrier emergency procedures and training (analysed in section related to air carrier)
- Aircraft maintenance in relation to maintenance organisations (MRO, CAMO)

Examples

Features of Interior Design: This security requirement prevents easy concealment of prohibited articles on-board the aircraft and ensures aircraft security search or checks (if required) are facilitated. This results in less complex operational procedures if security check or search is required, also leading to reduced workload. This security feature impacts the air carrier SOP's and human factors.

Security of parts, equipment and tools: While security regulations primarily focus on areas other than maintenance organisations, ICAO Annex 8, Chapter 6 requires maintaining adequate storage security for parts, equipment, tools, and materials within maintenance organisations. Additionally, there are specific requirements regarding the security of records. Failing to ensure proper security measures for these aspects could elevate the risk of unlawful interference or sabotage, potentially leading to the use of unsafe aircraft parts.

Task 1
Identifying safety/security dependencies

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UAS / RPAS

- UAS / RPAS operation and traffic management (shared airspace)
- Aerodrome operational systems
- Area of crisis management, contingency plans, emergency response primarily at the airports

Examples

UAS traffic management: The operations and number of UAS operators are continuously increasing, and further developments in this area will lead to the sharing of airspace between unmanned and manned aircraft.
The aim of Unmanned Aircraft System Traffic Management (UTM) is to ensure the safe, orderly, and efficient management of UAS operations, collaborating with all parties and involving both airborne and ground-based functions. UTM is envisioned to be interoperable with existing Air Traffic Management (ATM) systems to facilitate seamless and scalable operations. Safety is paramount in integrating UAS with manned aircraft and existing aviation systems.
Counter-UAS technology: While a wide range of counter UAS technologies exists, the field is still in its early stages without agreed-upon standards. The available solutions primarily focus on identifying and mitigating the risks posed by UAS (passive systems that aim to identify the UA), including techniques such as disabling or destroying the unmanned aircraft. t is essential to assess the potential implications these measures, both passive and active, may have on overall aviation safety. For instance, they may interfere with navigational systems, telecommunications, ground equipment and safety installations, or even pose a risk of bodily injury.

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Task 1
Identifying safety/security dependencies

Air Traffic Services

- ATS systems and system security (cyber security)
- Infrastructure
- Staff recruitment and training
- Organisational requirements
- Emergency procedures and contingency planning
- Operations
- Management system

Example

Contingency planning: Guidance contained in ICAO Doc 9985 & Doc 8973 refers to security elements of contingency planning, whilst safety regulation ATM/ANS.OR.A.070 requires that a service provider shall have in place contingency plans for all the services it provides in the case of events which result in significant degradation or interruption of its operations. Contingency plans are required in case of emergencies in the area of provided services but also in the area of the ATM own system infrastructure. Continuity of service should be enabled in the face of major outages, natural disasters, civil unrest or security threats. The main responsibility of ATS is to maintain flight safety even during unusual or emergency situations.

Task 1
Identifying safety/security dependencies

Aerodrome / Airport Operations

- Management system
- Aerodrome design and certification
- Aerodrome operations
- Aerodrome systems (cyber security)
- Contingency planning and emergency response
- Recruitment and training

Example

Boundaries: GM1 ADR.OR.B.015(b)(2) offers a precaution for those applying for aerodrome certification that the aerodrome boundary should not be confused with the boundaries established for other purposes, such as fences, the land ownership boundaries used by local planning authorities, or those used to designate security restricted areas. Security requirements also define areas of the airport: landside, airside, security restricted areas and critical parts of the security restricted areas and, if established, demarcated areas. Safety and security areas and boundaries do not have to correspond which may lead to operational challenges. Effectively, there are two layers of defined areas and boundaries within the airport/ aerodrome.

Task 1
Identifying safety/security dependencies

Aerodrome / Airport Operations (screening)

- Screener certification
- Transport of Dangerous Goods
- Training
- Organisational responsibility
- Operations
- Aerodrome certification (related to equipment)

Examples

Screeners training: Security regulation establishes the framework for x-ray image interpretation training and focuses on detection of prohibited articles. Safety regulation requires screeners to be trained (and complete competency assessment) for the identification of forbidden dangerous goods. It needs to be investigated within the framework of the project to what degree these two training processes could/should be/are aligned.

Prohibited articles list: There are several instances where prohibited articles defined in the security regulation overlap with articles classified as dangerous goods. This regulatory overlap may not only impact the "safety" level of airport operations and screeners' training processes but also impact the safety of aircraft.

Task 1
Identifying safety/security dependencies

Air Operations
- Operating procedures (SOP's & emergency procedures)
- Training
- Cyber security

Examples

Security training of Flight Crew and Cabin Crew: There are a number of significant safety - security overlaps contained within theAMC1 ORO.GEN.110(a) Operator responsibilities, associated GM and the Implementing Regulation (EU) No 2015/1998, Section 11. Specific references to security training programme are contained in the Implementing Regulation (EU) No 2015/1998, whilst GM1 ORO.GEN.110(a) Operator responsibilities refers to ICAO Doc 9811 (restricted access) which also contains guidance on the development of training programmes. Requirements for security training are contained in both safety and security regulatory requirements which may lead to conflicting information. Additionally, such overlaps may lead to gaps in oversight activities.

Carriage of potentially disruptive passengers : The competent authority is required to notify the air carrier, pre-flight, about the intention to board the 'potentially disruptive passenger'. This requirement is fundamental so the safety requirements in relation to seating requirements can be adhered to. It also has a positive impact on the CRM element of Threat and Error Management allowing staff to anticipate possible threats and make preparations should they encounter issues resulting from disruptive behaviour of such passengers.

Task 1
Identifying safety/security dependencies

Ground Operations

- Ground Handling operating procedures
- Dangerous Goods

Examples

Security search: Although air carrier is legally responsible for security search of the aircraft (if applicable), ground handling staff may be responsible for certain elements of the required search like search of aircraft hold. This will be conducted simultaneously with other handling related duties like loading or unloading of aircraft or safety related responsibilities like reporting observed dangerous goods spillages. Staff performing these duties will fall into safety – security interdependency area.

Task 1
Identifying safety/security dependencies

Off-airport Operations

- Transport of Dangerous Goods
- Training
- Organisational responsibility
- Safety Management

Examples

Protection of cargo and mail: Protection of cargo and mail entails ensuring security of goods throughout their transportation, handling, storage, and loading onto aircraft. The objective of protecting cargo and mail is to prevent unauthorised interference with items intended for aircraft loading, thereby falling under the realm of security concerns. However, the act of loading goods onto an aircraft introduces a dimension of potential impact on safety, encompassing risks such as inadvertent damage to the aircraft or its equipment, improper loading, or incidents that require reporting.
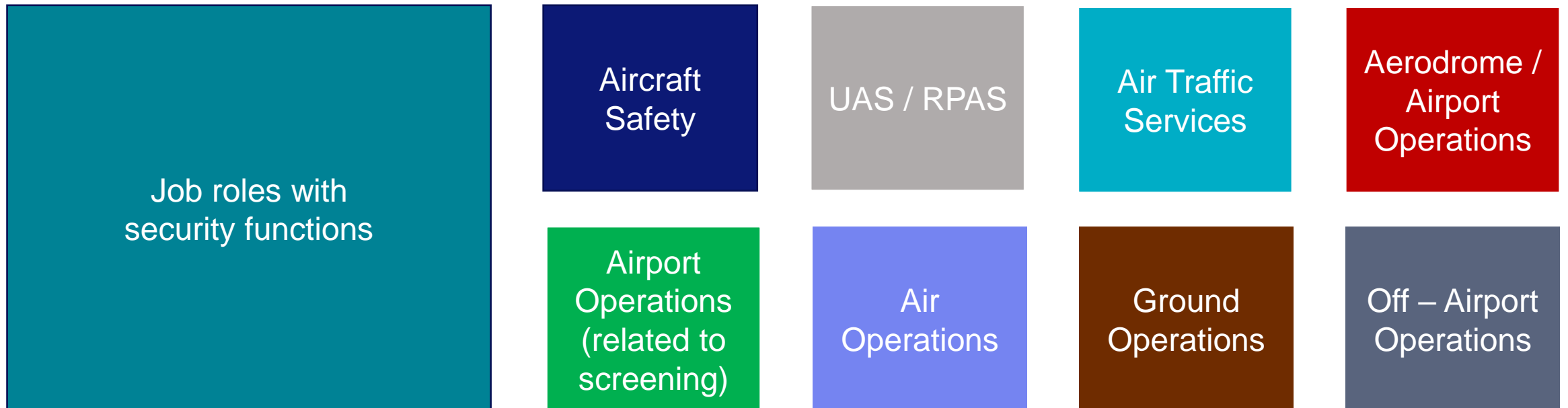
Personnel responsible for loading these goods must navigate the interplay between security and safety considerations. They bear the responsibility of adhering to security requirements whilst being aware of safety hazards. For example, any observed or induced damages occurring during the loading process must be duly reported, further underscoring the necessity for a comprehensive approach that addresses both security and safety imperatives.

Task 1
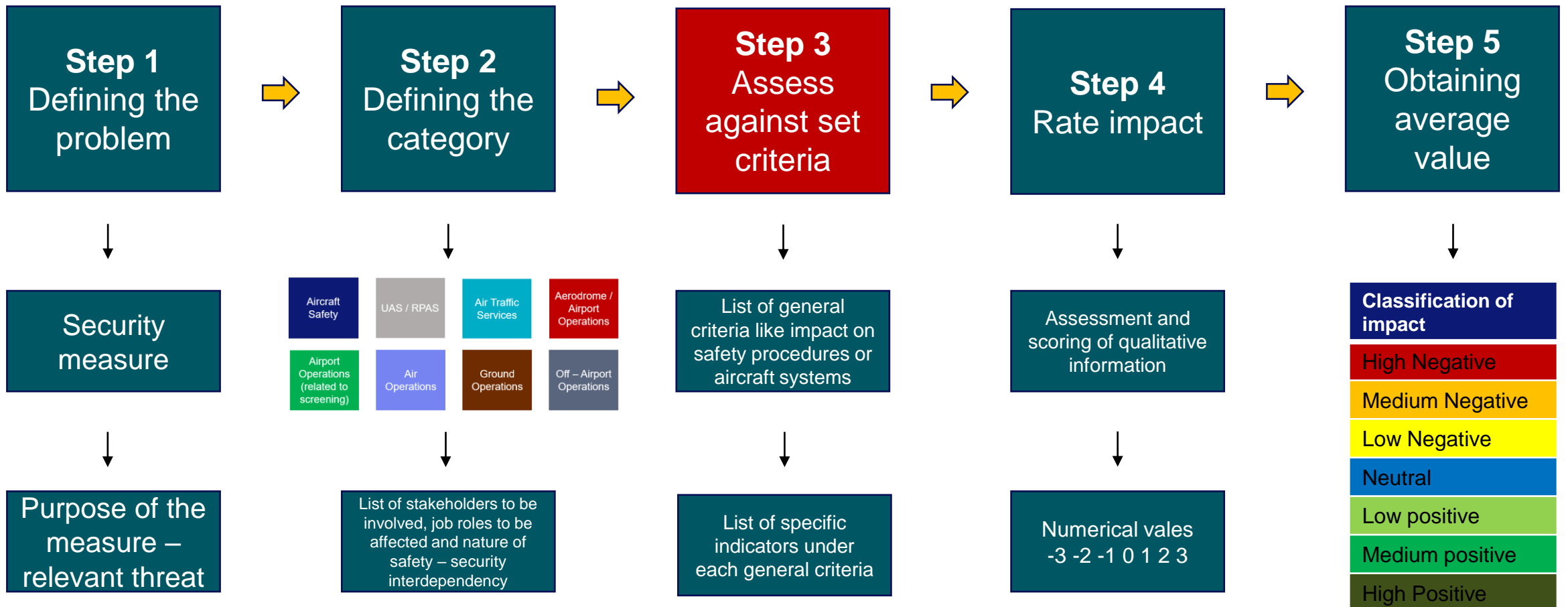## Identifying safety/security dependencies

- Report on aviation job roles with safety and security responsibilities D-1.2 is now published

- 8 main areas have been identified and nature of possible interdependencies described in task 1.1

- Job roles relevant to these areas were identified and regulatory requirements described

Job roles with security functions	Aircraft Safety	UAS / RPAS	Air Traffic Services	Aerodrome / Airport Operations
	Airport Operations (related to screening)	Air Operations	Ground Operations	Off – Airport Operations

Task 1
Impact Assessment Methodology

Step 1
Defining the problem

Step 2
Defining the category

Step 3
Assess against set criteria

Step 4
Rate impact

Step 5
Obtaining average value

Security measure

Aircraft Safety

UAS / RPAS

Air Traffic Services

Aerodrome / Airport Operations

Airport Operations (related to screening)

Air Operations

Ground Operations

Off – Airport Operations

List of general criteria like impact on safety procedures or aircraft systems

Assessment and scoring of qualitative information

Classification of impact

High Negative

Medium Negative

Low Negative

Neutral

Low positive

Medium positive

High Positive

Purpose of the measure – relevant threat

List of stakeholders to be involved, job roles to be affected and nature of safety – security interdependency

List of specific indicators under each general criteria

Numerical vales
-3 -2 -1 0 1 2 3

Task 1.3
Methodology

- This task aims to develop an Impact Assessment methodology that serves the dual purpose of allowing regulators and regulated entities to evaluate the effects of security measures on safety and establish appropriate mitigating actions to counteract potential adverse consequences of such measures.

- Currently, Regulatory Impact Assessments (RIAs) are predominantly conducted by the entities proposing new legislation, such as EASA RIA, UK CAA IA, and other critical infrastructure agencies, following a formalised IA approach endorsed by the government.

- The context in which regulated entities undertake impact assessments diverges notably. As indicated by a survey distributed among aviation stakeholders, impact assessments are not as commonly practiced, often taking the form of risk assessments mandated within Safety Management Systems.

Impact Assessment
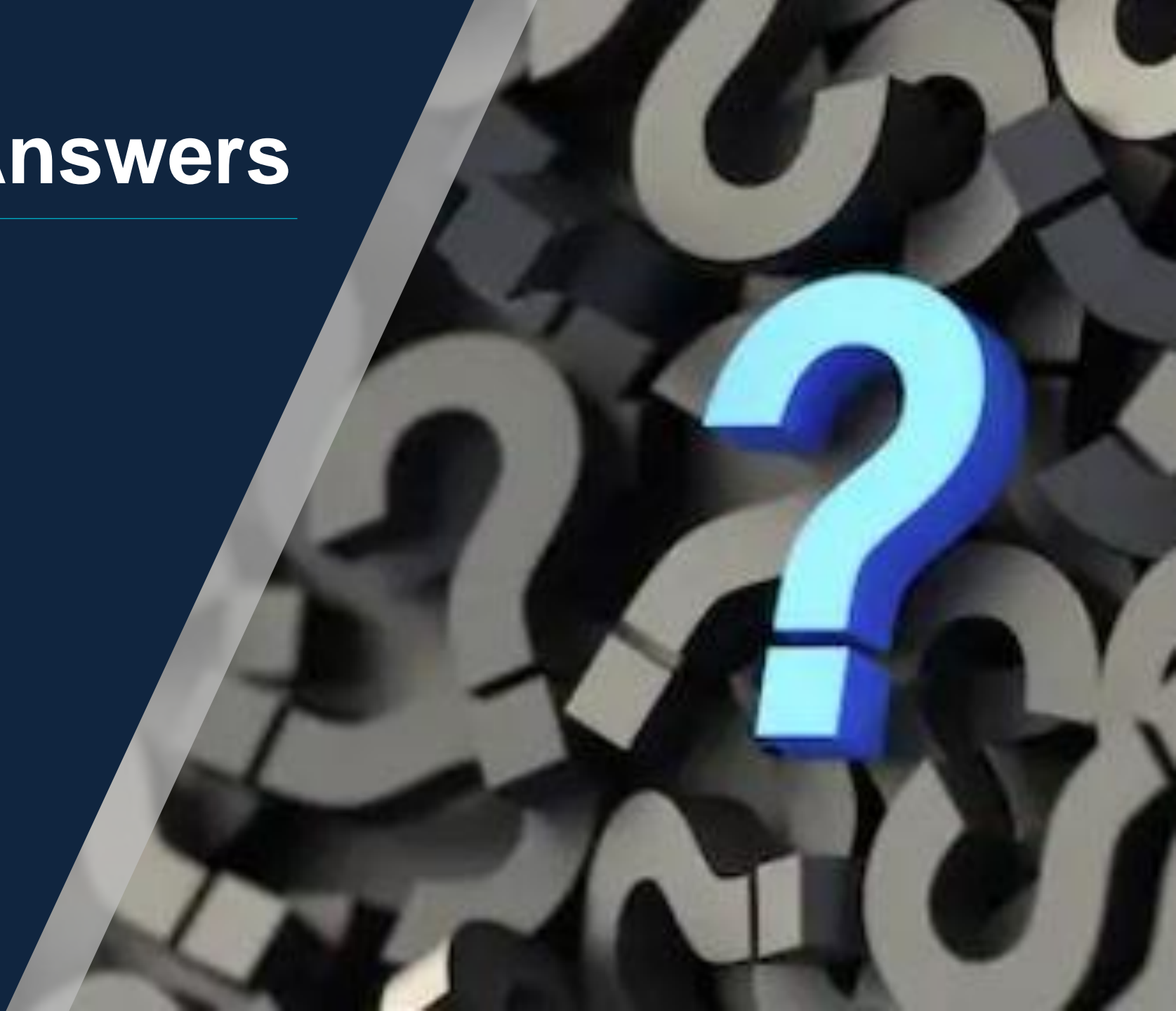## Proposed Criteria - Discussion

This methodology is in its early development stage
   - please provide feedback

All feedback will be evaluated and included in the research report

Thank you !!

Questions & Answers

Please submit questions using the Slido function

Task 2

Assessment of the impact of security measures on safety

Past activities

Delivery of the report D-2.1 « Identification of the main security threats and scenarios (physical threats and information security threats) having an impact on aircraft safety ».

Ongoing activities
- Definition of the safety and security interdependencies to be assessed
- Definition of the participants to the surveys (and interviews)
- Definition of the questionnaires and interviews

Future activities
- Conduct surveys and interviews
- Synthetise assessments including nature and magnitude of each interdependency
- Provision a gap analysis that defines which elements and measures are currently missing to ensure better safety outcomes

Task 2

Assessment of the impact of security measures on safety

A re-cap of the areas of interdependencies (D-1.1)

Aircraft Safety	UAS / RPAS	Air Traffic Services	Aerodrome / Airport Operations
Airport Operations (related to screening)	Air Operations	Ground Operations	Off – Airport Operations

Task 2

Assessment of the impact of security measures on safety

Participants to surveys and interviews

- Experts of ground security from airport and air operations
  - Screening
  - Passengers
  - Cargo, mail, baggages and dangerous goods
  - Impact of security measures implemented for EU inbound flights on the safety of flights
- Flight security experts (authorities, air operators)
- Cybersecurity experts in all aviation fields
  - Aircraft manufacturers,
  - Security systems manufacturers,
  - ATC systems
- National Authority specialists in security
  - Preparedness level and training requirements for specific personnel groups
  - Management of security incidents on the safety of operations
  - Evolution of aviation environment (digitalisation)
  - RPAS consideration
  - Urban mobility
- Specialists of safety and security oversight mechanisms
- Air Traffic controller
- CAMO and MRO security (and cyber security) specialists

Task 2
Links between methodology and questions

Having identified the relevant categories and the relevant criteria to assess the impacts, we will create a set of questions to precisely assess the interactions between safety and security as well as their root causes.

Task 2
Different question types

Open-ended questions to deal with most important issues or subjects we may have overlooked

- Are there any specific security technologies that you believe have shown a particularly positive or negative impact on aviation safety? Which one ?

- What are the most significant security threats or vulnerabilities you see in commercial aviation today, and how can security measures be tailored to address these specific challenges

Questions based on a likert scale to obtain opinions on a wide range of subjects

- Please indicate your level of agreement with the following statements, using a scale from 1 to 4
  (1 being strongly disagree, 4 being strongly agree)

- Ground security measures at the aerodrome effectively safeguard against unauthorized access and security threats

- There have been instances where security measures negatively impacted air operations

- There have been instances where security measures positively impacted air operations

Task 2
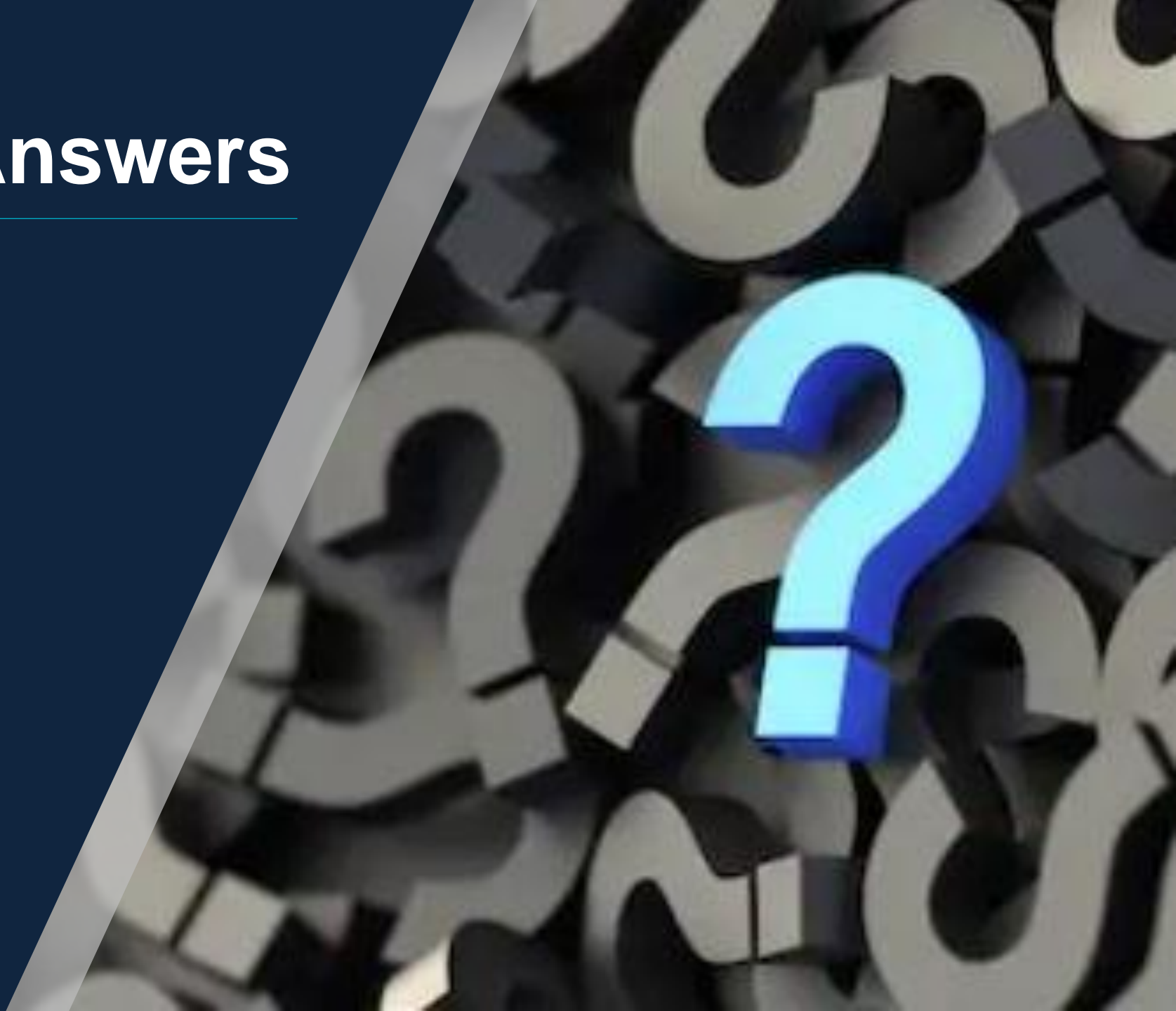## Data analysis and expected output

- Data will be collected and analysed using three dedicated software

  - Mentimeter, Surveymonkey & QDA Miner

Expected output :

- Transforming unstructured textual data into structured data, by measuring the frequency and proximity of issues raised.

  - In the area of Air Traffic Control, 65% of the critical issues raised are caused by technologies considered as outdated.

  - 40% of avionics system compromission are based on very basic attacks on the supply chain.

  - 80% of the critical job roles are not trained to cyber threats.

Task 3

Analysis of certification standards

Purpose (aspirational, intention)

- To contribute to the situational awareness related to the impact security threats have on aircraft design
- To facilitate safety/security discussions and seeking synergies in certification processes on both sides

Achieving this purpose can happen if we deliver objectives of analysing, understanding and collating into reports:

- standards, best practices and processes in the scope of: aerodromes, air operators, security equipment and screeners' certification and how safety and security are intertwined
- role and significance of aircraft design standards, and screening eqipment capabilities in mitigating physical and cyber threats.

Task 3

Analysis of certification standards

Expected outcomes – a series of Reports related to:

- the relevance of the existing detection requirements for screening equipment to mitigate threats to aircraft structure

- the relevance of current aircraft design requirements for mitigating physical and information security threats including a gap analysis of aircraft design standards

- the existing safety and security certification requirements of air operators and aerodromes (including verification of security requirements during certification)

- the security certification processes and their effectiveness including direct and indirect impact on safety and ensuring the maximum level of safety

Task 3

This task covers entire 2024

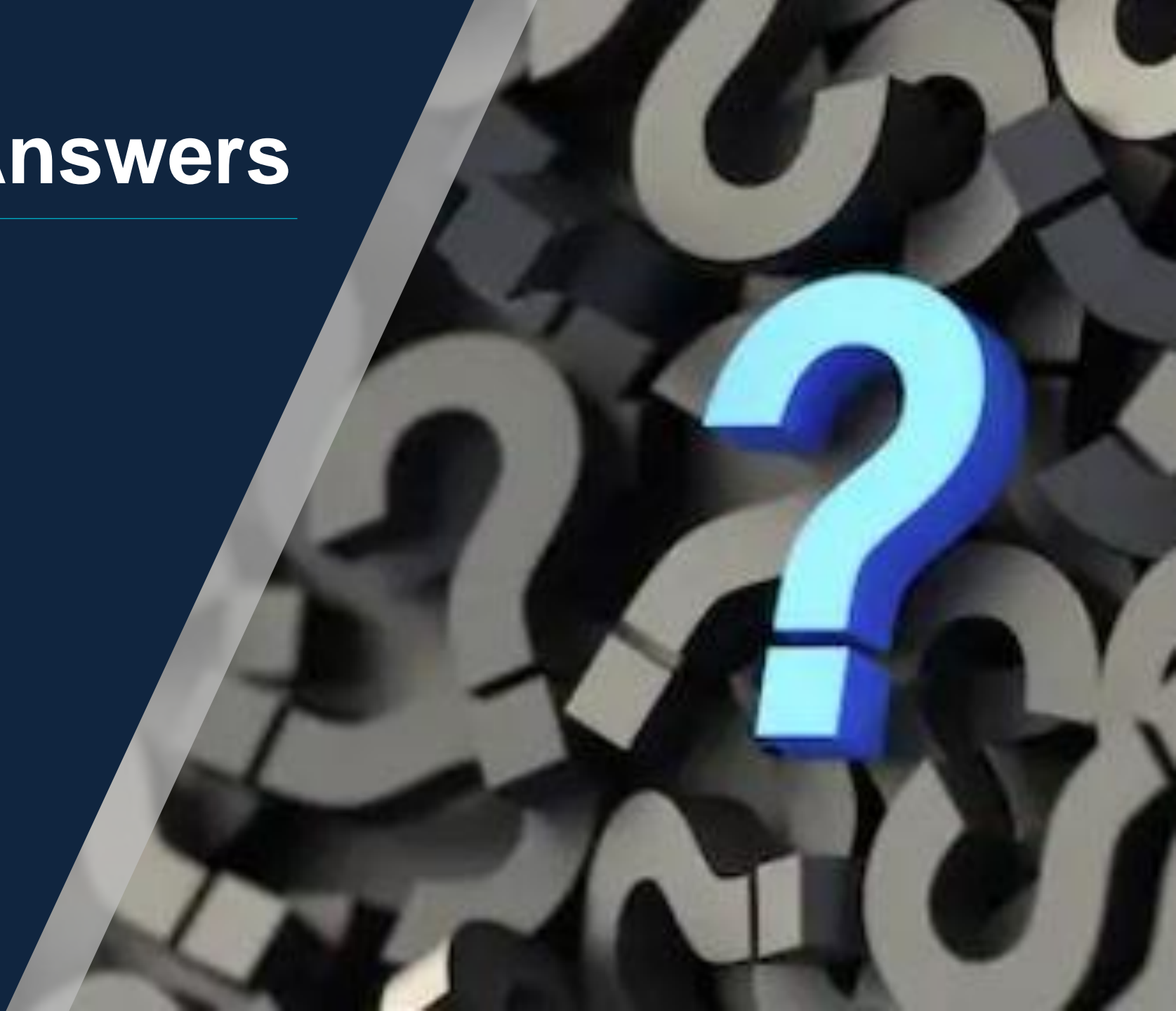## Analysis of certification standards

The way we will work

- Using deliverables of previous tasks (for example 2.1)

- Methodology applied includes: documents analysis, semi-structured interviews, gap analysis, workshops (consolidation of input)

Key Steps

- **Review** of Task 1 and 2 outcomes – Preparatory tasks, already commenced

- Identification of stakeholders – Preparatory tasks, already commenced

- **Review** of aircraft design standards and processes, regulatory requirements, screening equipment detection requirements, certification requirements – Participation of stakeholders critical

- **Conduct interviews** & **workshops** – Participation of stakeholders critical

Questions & Answers

Please submit questions using the Slido function

Task 4
Integrated risk management

Identify the safety mechanisms, methods and tools that might contribute to the effective implementation of security measures.

Develop recommendations for integrated risk assessment management.

Develop recommendations to support an integrated policy and decision-making process in the field of safety and security at national and EU level.

- Existing safety concepts
- Evaluation of models and approaches
- Follow up from the survey already undertaken for task 1
- Your feedback and engagement will be essential

- Investigation of current safety and security risk assessment practices
- Identification of tools and solutions for integrated risk management – national and EU level
- Recommendation for implementation

- Investigation of current decision-making and policy development structures in place
- Safety and security touchpoints within the current structure and identification of gaps
- Testing of proposed solutions

Questions & Answers

Please submit
questions using
the Slido function

Conclusion & Next Steps

Thank you all for attending

Full Question and Answers, along with this presentation, will be posted on the EASA Website

We are planning a further workshop in May next year to share more information with you as to how the project is progressing

In addition, there will be more topic focused workshops throughout 2024 & 2025 which we will notify you about.

If you wish to participate further in this project, share your thoughts with us or provide general feedback please contact a member of the Project Team

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End Presentation