IATA Asia Pacific Ground Operations Workshop 5/6-Aug-2024

Monika Mejstrikova, Director Ground Operations, IATA

Massimo Cicetti, Head of Innovation and Efficiency, IATA

Safety Briefing

Competition Law Guidelines

This workshop is being conducted in full compliance with antitrust and competition law.

The following Agreements and Activities are Prohibited:

- Any collective agreement concerning prices or charges, allocating markets, territories, customers, suppliers, agents, etc.

It is Prohibited to disclose the following information:

- Individual airline cost, rates, charges, surcharges or customer
- Individual airline intentions regarding increasing, reducing or reallocating aircraft capacity
- Sensitive commercial or proprietary information without consent

Participants are cautioned that any discussion regarding topics outside the scope of the agenda, either on the floor or off, is strictly prohibited. The foregoing applies equally to email discussions, instant messaging and social media discussions

Monday August 5th

1. Welcome and Introduction
2. ICAO Ground Handling Manual (Doc 10121) ICAO
3. Ground Operations sustainability
4. Industry standards update (Operational portal)
5. ISAGO Program: Overview, Changes and Benefits

Welcome Address

Mr Susantha De Silva
Regional Officer
Safety Implementation
ICAO

Welcome Address

Ms Monika Mejstrikova
Director, Ground Operations
IATA

Scope

Guidance to States on how to encourage the use of SMS by GHSPs (ICAO and other State material)

Guidance to Aerodromes on how they might 'regulate', 'provide safety oversight', 'licence' GHSPs (ACI)

Guidance to GHSPs and Aircraft operators on how to implement SMS principles and separate operational procedures (IATA/IBAC)

Content

IATA

ICAO and Ground Handling

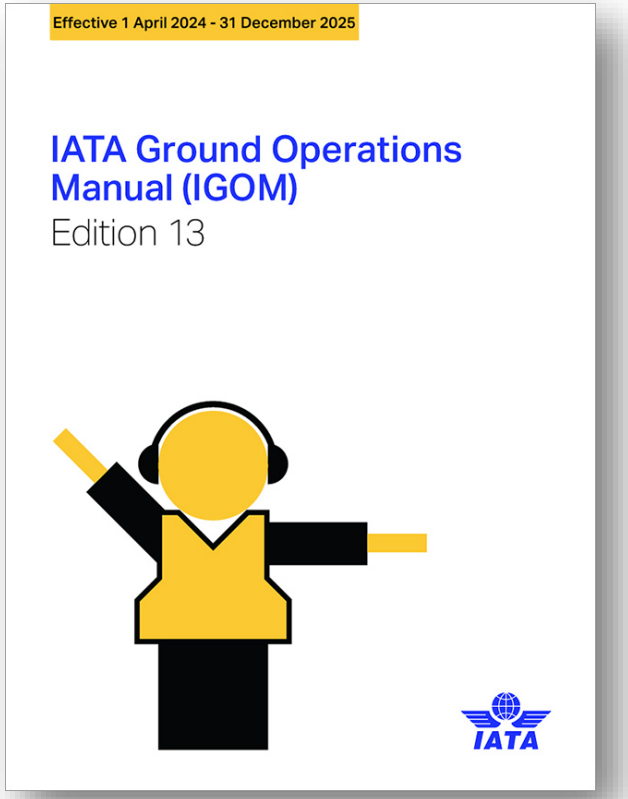
Doc 10121 Manual on Ground Handling (First Edition) December 2019

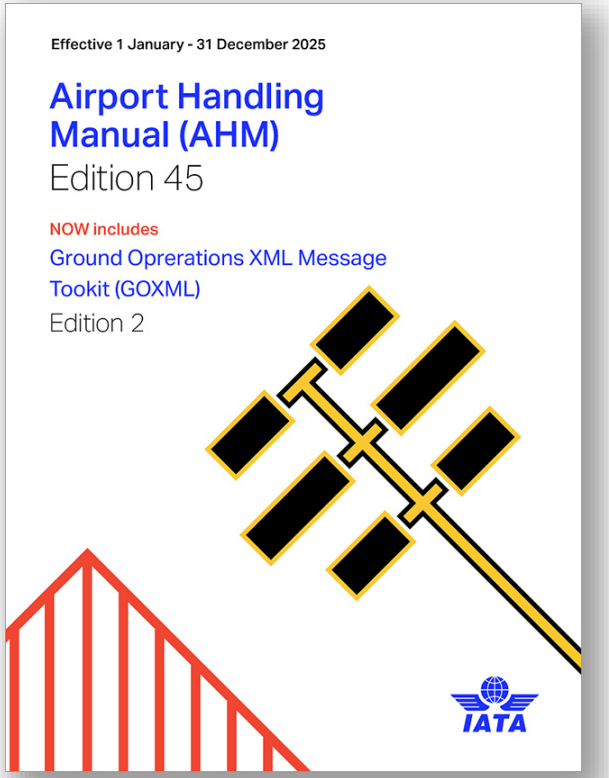
1 "For several years the air operator, aerodrome and ground handling sectors of industry, together with a number of State regulators, have been concerned with the level and extent of damage to aircraft during ground handling and the rate of safety occurrences to aircraft, passengers and airport workers. This concern continues to be shared internationally by various groups and organizations."

2 "As part of their State Safety Programme, States should:
a) assess the impact of ground handling operations on aviation safety;
b) ensure this impact is managed according to a regulatory framework addressed to air operators, GHSPs and/or aerodrome operators; and
c) determine appropriate safety promotion actions."

3 "A single audit performed by the industry-based audit programme and the resultant audit report may, if recognized by the relevant stakeholders, be used by the airlines to replace the duplicating audits (e.g. IATA Safety Audit for Ground Operations (ISAGO) Programme and IBAC International Standard for Business Aircraft Handling (IS-BAH) Programme)."

Correlation Table





IATA

Mapping and correlation between the ICAO provisions and AHM / IGOM standards

ICAO Ground Handling Manual Doc. 10121	IGOM Ed.13
6.2.1.4	See note1
6.2.1.5	3.1.1, 3.1.2.5
6.2.2.4	3.1.3.1, 3.1.3.2, See note1
6.2.2.5	3.1.3.2
6.2.2.6	3.1.3.1, 3.1.3.2, 3.1.3.3, 3.1.3.4
6.2.2.7	3.1.3.2
6.2.3.3	3.1.2.4, See note2
6.2.3.4	3.1.2.4
6.2.3.5	3.1.3.2, 3.1.2.3, 3.1.2.4, 3.1.3.2,
6.2.3.6	3.1.3.2, 3.1.2.3, 3.1.2.4, 4.6.3.1, 4.9.4.3, See note2
6.2.4.2	3.1.3.1, 3.1.3.4
6.2.4.3	3.1.3.2
6.2.4.4	3.1.3.2
6.2.4.5	3.1.3.5, 3.1.3.6, 3.1.3.9
6.2.5.3	3.2.1 - 3.2.3
6.2.5.4	3.2.1 - 3.2.3
6.2.6.3	3.3.1 – 3.3.7
6.2.7.3	1.1.2, 1.1.6.2,1.1.6.3, 1.1.6.4, 2.7.3, 4.5.3.5, 4.5.7.2, 4.5.7.5, 4.5.7.7, 5.4.1, 6.5.1, 6.5.4
6.2.7.4	1.1.6.4 & Introduction point 2
6.2.7.5	6.5.4
6.3.2.4	5.1 to 5.8
6.3.2.5	5.2, 5.4.3.1, 5.4.3.3
6.3.3.5	3.1.2.1, 4.1.1
6.3.3.6	3.1.2.4, 4.1.1
6.3.3.7	3.4, 4.1.1, 4.6.2.3, 4.6.6.4
6.3.3.8	4.1.3, 4.2.1, 4.1.4.1
6.3.3.9	4.1.1, 4.1.3, 4.2.1
6.3.4.4	3.1.3.5
6.3.5.4	3.1.3.1, 4.1.4.1, 4.1.4.2
6.3.6.2	4.5.1- 4.5.10
6.3.7.2	3.1.3.1, 3.1.3.2, 3.1.3.5 - 3.1.3.9,
6.3.8.4	3.1.3.1, 3.1.3.2, 3.5.2, 3.5.3, 3.6.2, 3.6.3
6.3.9.3	3.1.3.1, 3.1.3.2, 4.6.8.2,
6.3.10.5	3.1.3.1, 4.6.1 - 4.6.10, 4.7, 4.8
6.3.11.3	3.1.3.1, 4.9.1 - 4.9.4
6.3.12.5	3.8
6.3.12.6	3.8
6.3.12.7	3.8

Note1: Refer to AHM Chapter 1100
Note2: Refer to AHM 465

8 August 2024

IATA

Focus on Ground Operations

Monika Mejstrikova, Director Ground Operations

Massimo Cicetti, Head of Innovation and Efficiency

Ground Operations

Global GOP positions

White papers, positions, regulation review and feedback, impact assessment

Stakeholders' management

Engagement, advocacy, tracking - airlines, GHSPs, Auditors, Airports, Regulators.

Marketing, promotion, communication

Webinars, workshops, IGHC program, videos, brochures, website update, social media adds

Global Standards

AHM, IGOM, BRM, BagID, Baggage Resolutions and RPs + WGs' management

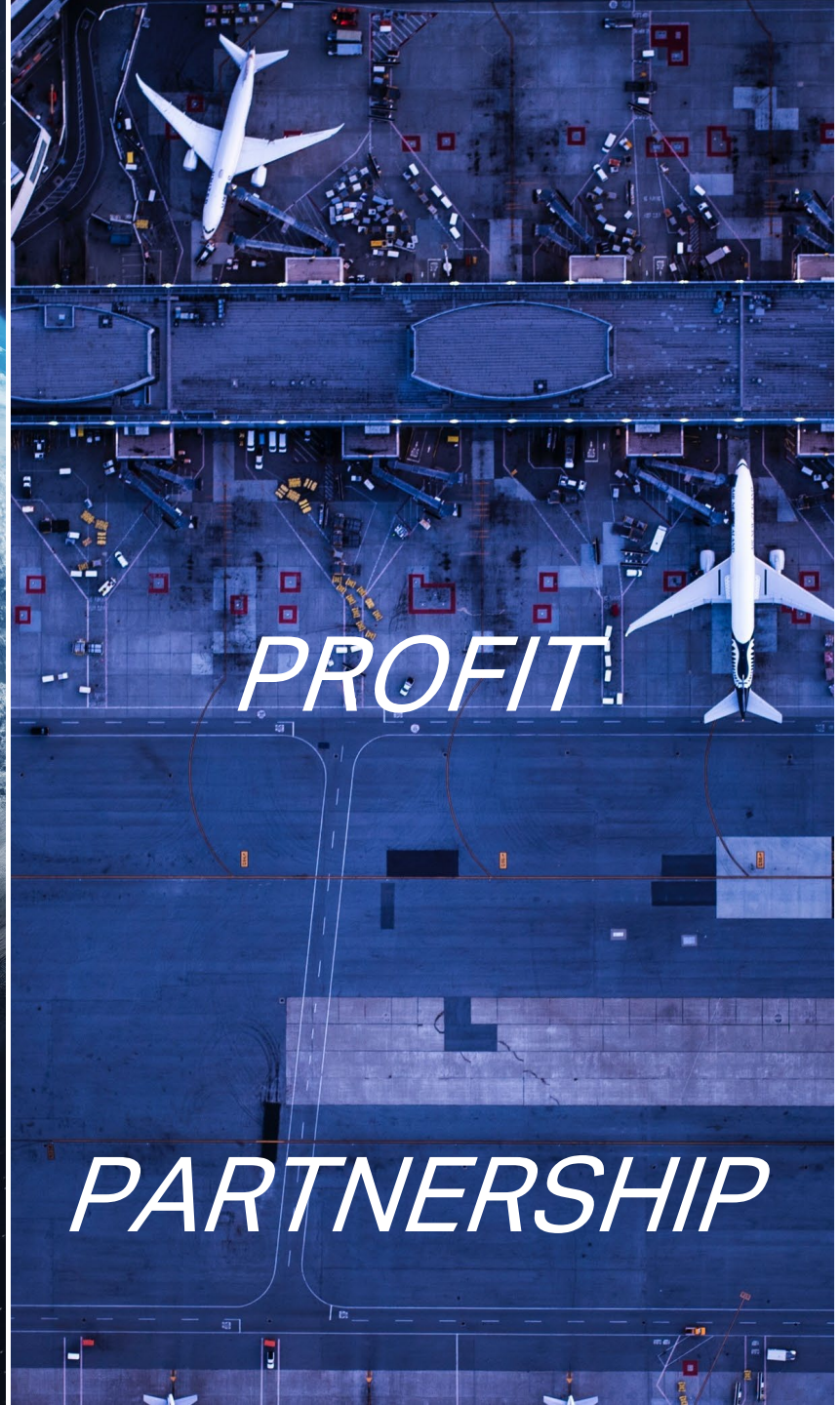
Standards' adoption

OPS portal, benefits' studies (Ground Damage, Training), online tools (excel interface to X565) and platforms

Audit Programs

Program requirements, audit checklists, auditors' training and qualification, performance monitoring, audit process management, audit

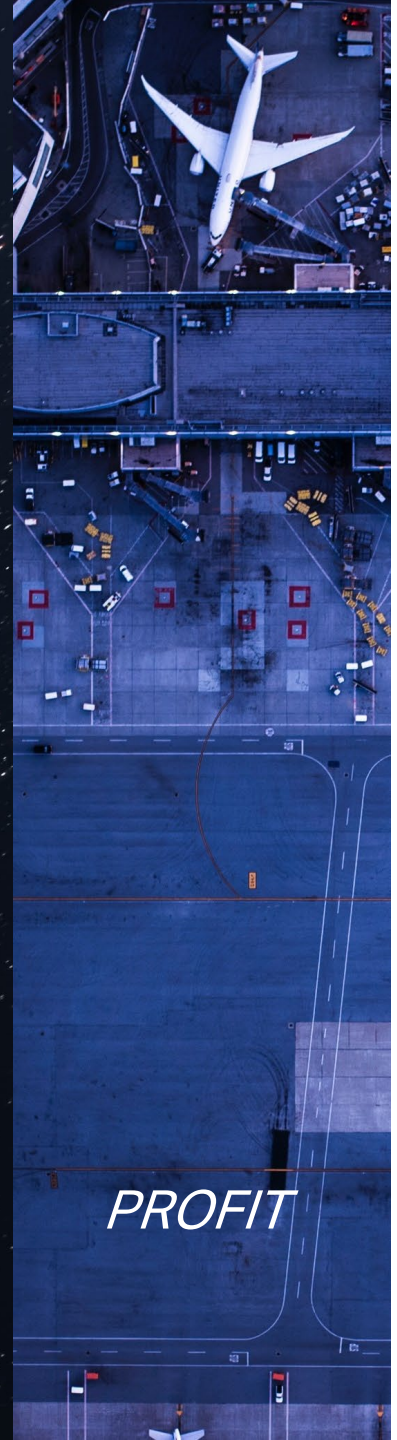

PLANET


PROFIT
PARTNERSHIP


PEOPLE

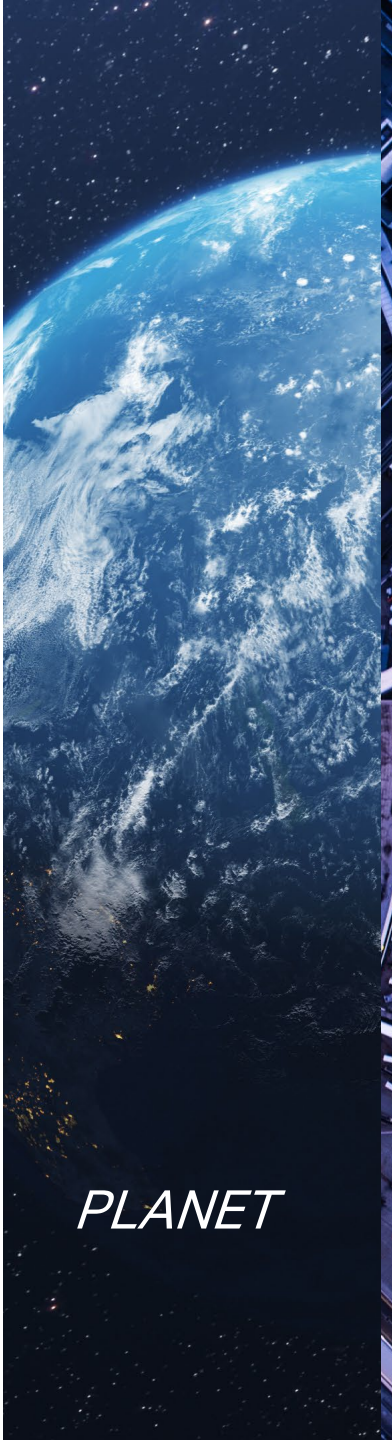
Drive ground operations towards Fly Net Zero Carbon Emission

PLANET



PROFIT

PEOPLE



PLANET

Lower turnaround costs, reduced operational delays and reduced ground damage

PROFIT

PEOPLE


PLANET
PROFIT
Attraction, retention and injury prevention
People's sustainability
PEOPLE

PLANET

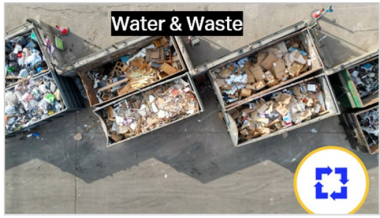

Green GSE


Sustainable fuel


GSE pooling


Sustainable taxi


Environment management systems


Water & Waste

Green GSE


Sustainable fuel

GSE pooling

Sustainable taxi

Integrated management systems

Water & Waste


Attraction & Retention


Injury prevention


Training reforms and training passport


People sustainability

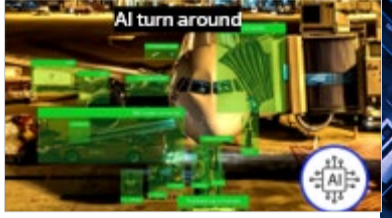
PEOPLE

Attraction & Retention

Injury prevention

Training reforms and training passport

People sustainability


AI turn around


Asset tracking


Damage prevention

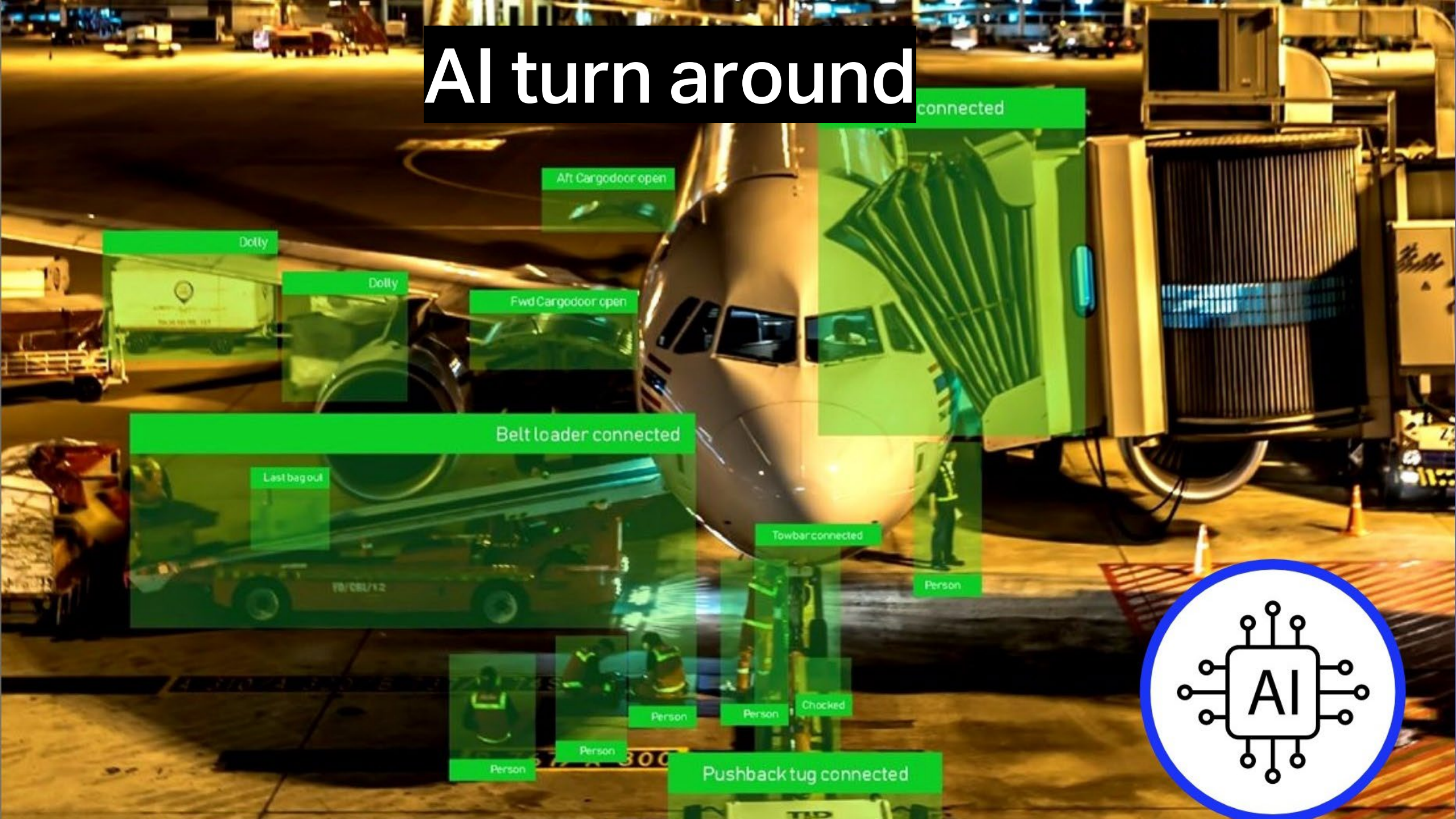

Aircraft data exchange


PROFIT


Digital LIR


Autonomous GSE


Robotics

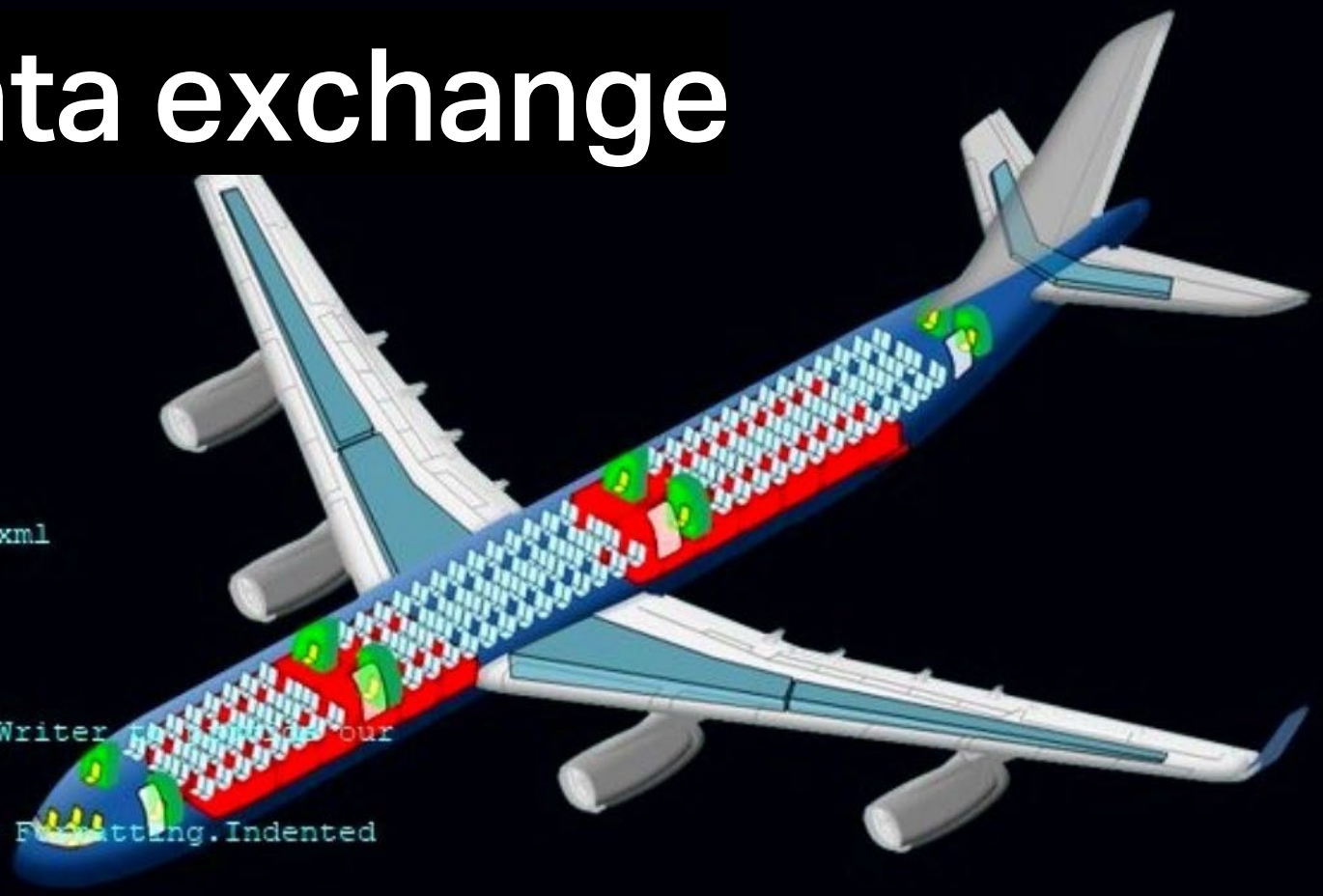

AI turn around
connected
Aft Cargodoor open
Dolly
Dolly
Fwd Cargodoor open
Belt loader connected
Last bag out
Towbar connected
Person
Person
Person
Person
Chocked
Person
Pushback tug connected
AI

Asset tracking

Damage prevention

Aircraft data exchange

```
    Dim swRMSRequest As StreamWriter
    Dim txtstr As Stri
    'swRMSRequest = Fi
    swRMSRequest = File.CreateText(strPath)
    Dim xmldoc As XmlDocument = New XmlDocument()
    'xmldoc.LoadXml(dtRow("RMS_reqSentM"))
    xmldoc.LoadXml(strmessage)
    Dim sb As New StringBuilder()
    '''''We will use stringWriter to push the formated xml
    into our StringBuilder sb.`
    Using stringWriter As New StringWriter(sb)
        '' `''We will use the Formatting of our xmlTextWriter
ation.`
                        xmlTextWriter.Formatting = Formatting.Indented
            xmldoc.WriteTo(xmlTextWriter)
                swRMSRequest.Close()
  End If
eqType = "XML") Then
    Dim swRMSRequest As StreamWriter
    Dim txtstr As String = String.Empty
    'swRMSRequest = File.CreateText(strFileRMSRequest)
```



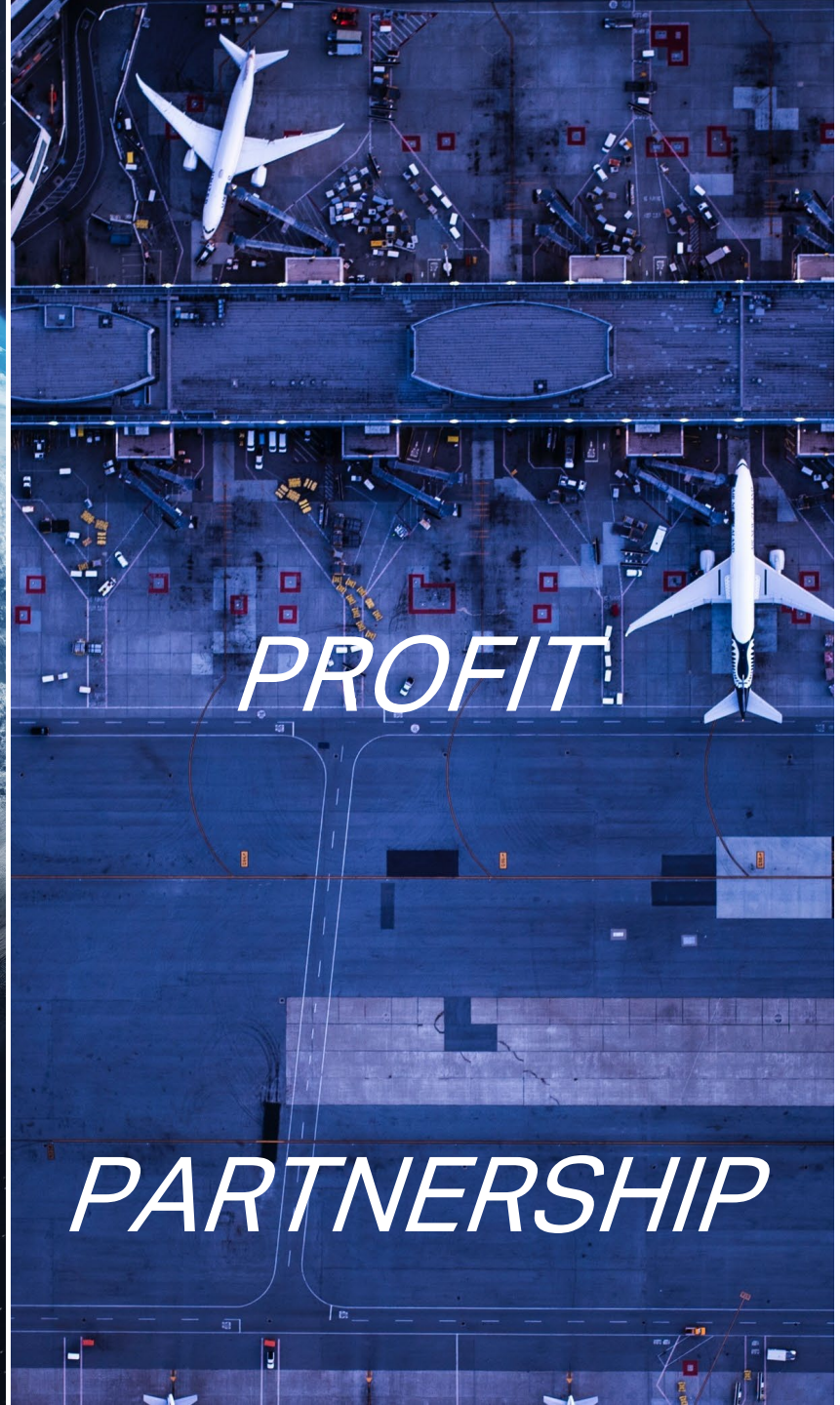
BASIC WEIGHT | CREW PANTRY | LOADING SYSTEMS | CABIN SEATS | FUEL TANKS

Digital LIR

Autonomous GSE

Robotics


PLANET

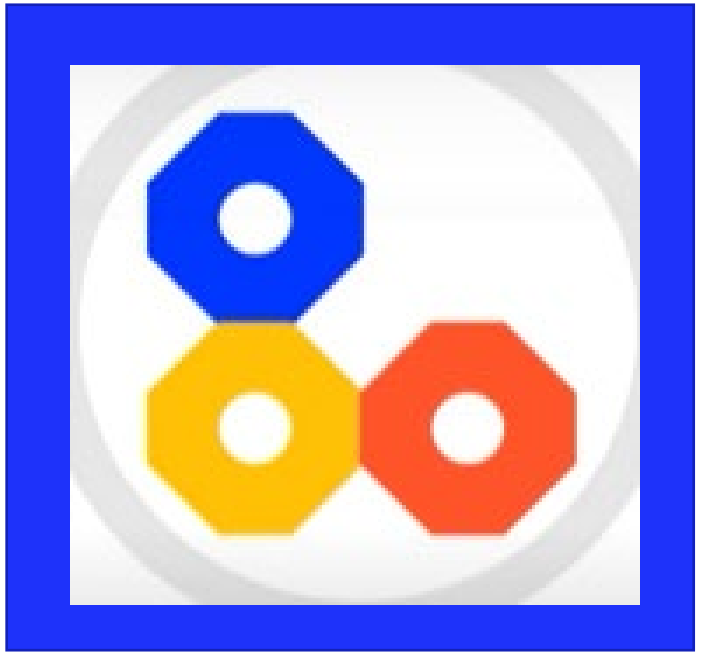

PROFIT
PARTNERSHIP


PEOPLE

Introduction to the Gap analysis for International standards

Ground Operations Standards

IATA priority
Implementation of standardized training



Minimum

requirements for front-liners

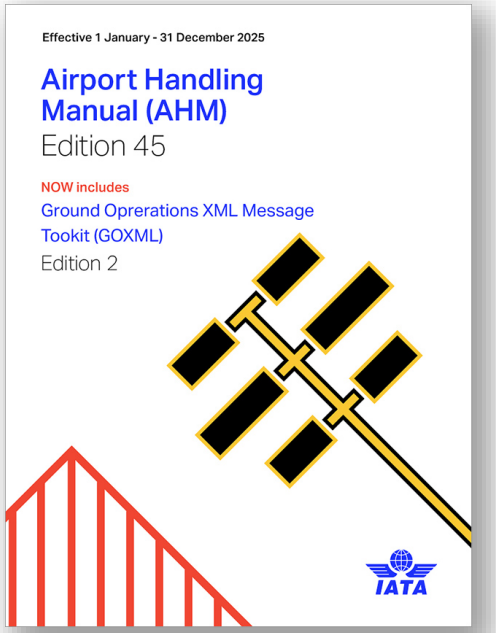
Enhance

level of training across industry

Reduce

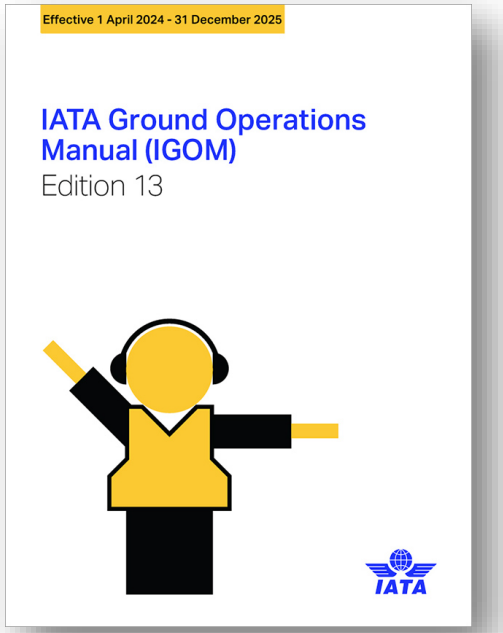
Training time and costs
Costs for airline's training

Ground Operations



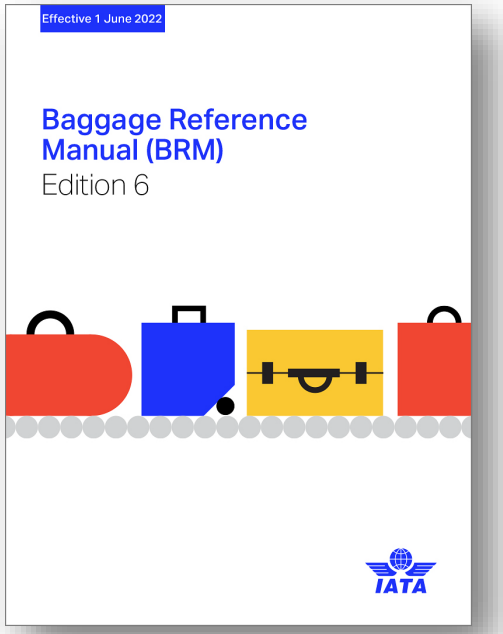
The AHM contains the **industry-approved policies and standards** to support safe and efficient ground operations above and below the wing.

AHM



The IGOM **standardizes ground handling processes and procedures** to reduce the complexity between working with multiple airlines, airports and ground service providers.

IGOM



Designed to provide insight into the **key features of baggage operations**, the content for this manual has been gathered through intensive collaboration with those in baggage management.

BRM

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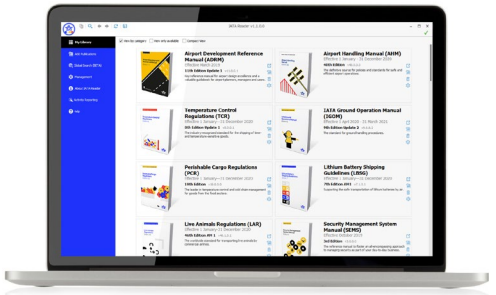

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How are the publications users benefiting?

91%

GSPs improved their ground handling operations

86%

GSPs were able to reduce the risk of aircraft damage

86%

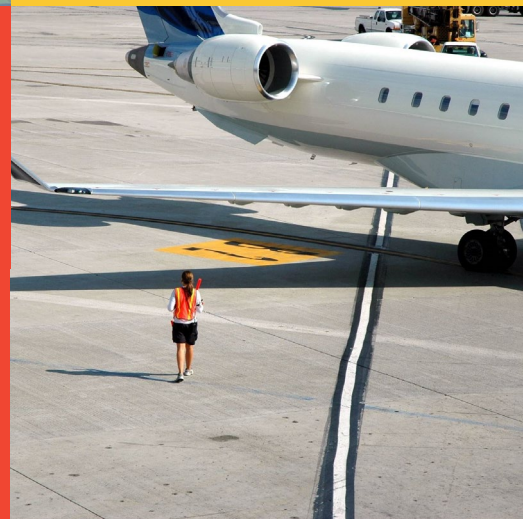
Airlines reduced the amount of errors

84%

Airlines improved their ground handling operations

92%

Agree that the information is up to date and unmissable



IATA

Digital AHM Toolbox

Ground Handling Agreement Templates

Ground Handling Agreement templates including the **IATA's SGHA**, the **IATA Service Level Agreement**, the **IATA Subcontracting Agreement** and the **IATA Standard Inflight Catering Agreement**.

Ground Operations XML Messaging Toolkit

The GOXML Toolkit, which drives the development of **digital messages**, supporting aviation stakeholders in moving towards **digitalization of ground operations.**

GSE Specific Maintenance Checklists

Comprehensive set of generic and GSE specific **maintenance checklists and schedules** recommended for use by OEMs, GSE owners / operators to standardize their **GSE maintenance program**.

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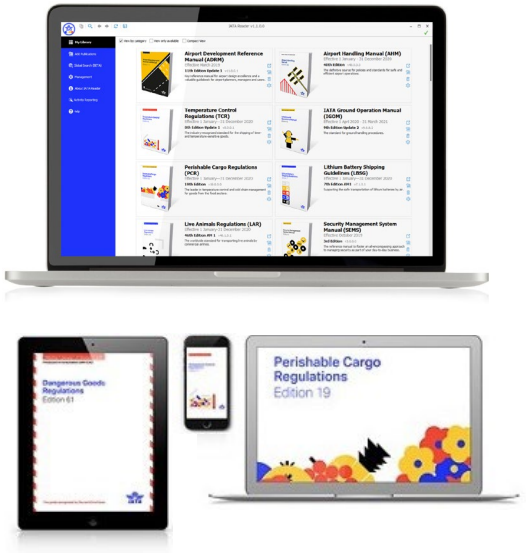


www.iata.org/en/publications/elibrary

ISAGO [SMS] for GHSPs

ISAGO Standards are equivalent to ICAO SMS

(Annex 19 and DOC 9859 SMM Edition 4)

Compatible with SMS for air and airport operators

Safety policy and objectives

- Management commitment
- Safety accountability and responsibilities
- Appointment of key safety personnel
- Coordination of emergency response planning
- SMS documentation

Safety risk management

- Hazard identification
- Risk assessment and mitigation

Safety assurance

- Safety performance monitoring and measurement
- The management of change
- Continuous improvement of the SMS

Safety promotion

- Training and education
- Safety communication

IATA ISAGO

Safety Management

Safety and other management systems are covered in AHM Chapter 6

- 601 – Organization and Management
- 610 – Safety Management system
- 615- Monitoring Program
- 616- Human Factors
- 617- Occupational Health and Safety(OHS)
- 620 -Guidelines for an Emergency Management system
- 621- Security Management

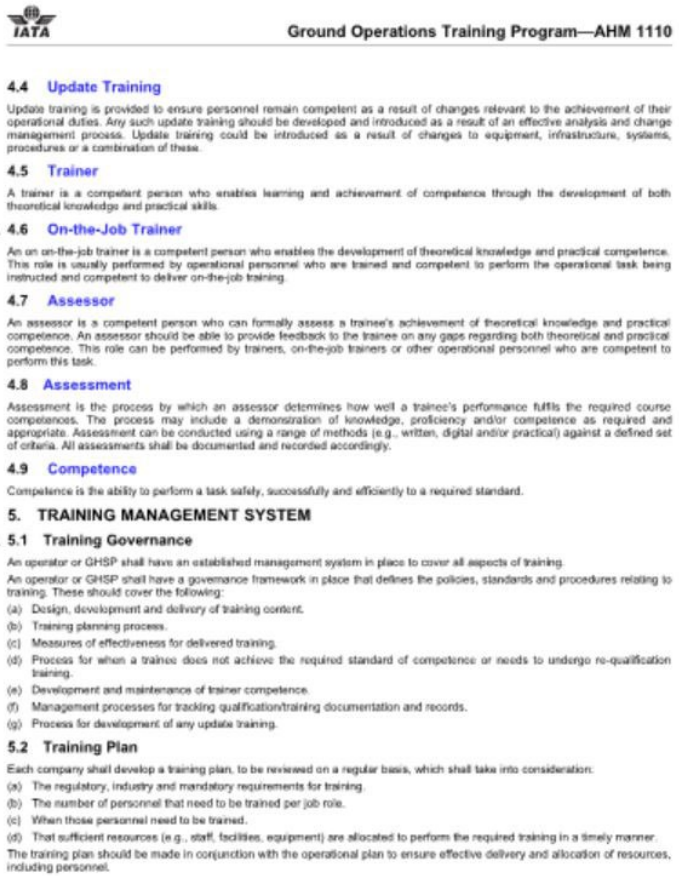
AHM 1110- Ground Operations Training

Key sections

- Training Management System
- Training Programs
- Training Methods
- Training Documentation and Records
- Initial and continuous training qualifications
- Jobs roles and functions in ground operations
- Training Modules

AHM 1110 Ground Ops Training Program (2017)

Training management



IATA Ground Operations Training Program—AHM 1110

4.4 Update Training

Update training is provided to ensure personnel remain competent as a result of changes relevant to the achievement of their operational duties. Any such update training should be developed and introduced as a result of an effective analysis and change management process. Update training could be introduced as a result of changes to equipment, infrastructure, systems, procedures or a combination of these.

4.5 Trainer

A trainer is a competent person who enables learning and achievement of competence through the development of both theoretical knowledge and practical skills.

4.6 On-the-Job Trainer

An on-the-job trainer is a competent person who enables the development of theoretical knowledge and practical competence. This role is usually performed by operational personnel who are trained and competent to perform the operational task being instructed and competent to deliver on-the-job training.

4.7 Assessor

An assessor is a competent person who can formally assess a trainee's achievement of theoretical knowledge and practical competence. An assessor should be able to provide feedback to the trainee on any gaps regarding both theoretical and practical competence. This role can be performed by trainers, on-the-job trainers or other operational personnel who are competent to perform this task.

4.8 Assessment

Assessment is the process by which an assessor determines how well a trainee's performance fulfils the required course competences. The process may include a demonstration of knowledge, proficiency and/or competence as required and appropriate. Assessment can be conducted using a range of methods (e.g., written, digital and/or practical) against a defined set of criteria. All assessments shall be documented and recorded accordingly.

4.9 Competence

Competence is the ability to perform a task safely, successfully and efficiently to a required standard.

5. TRAINING MANAGEMENT SYSTEM

5.1 Training Governance

An operator or GHSP shall have an established management system in place to cover all aspects of training.

An operator or GHSP shall have a governance framework in place that defines the policies, standards and procedures relating to training. These should cover the following:

(a) Design, development and delivery of training content.
(b) Training planning process.
(c) Measures of effectiveness for delivered training.
(d) Process for when a trainee does not achieve the required standard of competence or needs to undergo re-qualification training.
(e) Development and maintenance of trainer competence.
(f) Management processes for tracking qualification/training documentation and records.
(g) Process for development of any update training.

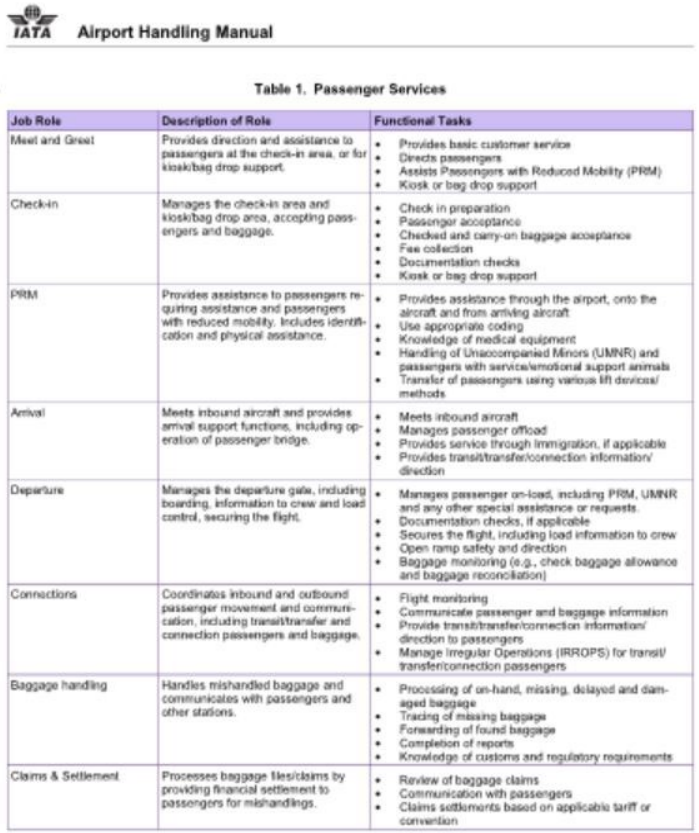
5.2 Training Plan

Each company shall develop a training plan, to be reviewed on a regular basis, which shall take into consideration:

(a) The regulatory, industry and mandatory requirements for training.
(b) The number of personnel that need to be trained per job role.
(c) When those personnel need to be trained.
(d) That sufficient resources (e.g., staff, facilities, equipment) are allocated to perform the required training in a timely manner.

The training plan should be made in conjunction with the operational plan to ensure effective delivery and allocation of resources, including personnel.

Job functions within the IGOM scope



IATA Airport Handling Manual

Table 1. Passenger Services

Job Role	Description of Role	Functional Tasks
Meet and Greet	Provides direction and assistance to passengers at the check-in area, or for kiosk/bag drop support.	• Provides basic customer service • Directs passengers • Assists Passengers with Reduced Mobility (PRM) • Kiosk or bag drop support
Check-in	Manages the check-in area and kiosk/bag drop area, accepting passengers and baggage.	• Check in preparation • Passenger acceptance • Checked and carry-on baggage acceptance • Fee collection • Documentation checks • Kiosk or bag drop support
PRM	Provides assistance to passengers requiring assistance and passengers with reduced mobility. Includes identification and physical assistance.	• Provides assistance through the airport, onto the aircraft and from arriving aircraft • Use appropriate coding • Knowledge of medical equipment • Handling of Unaccompanied Minors (UMNR) and passengers with service/emotional support animals • Transfer of passengers using various lift devices/methods
Arrival	Meets inbound aircraft and provides arrival support functions, including operation of passenger bridge.	• Meets inbound aircraft • Manages passenger offload • Provides service through Immigration, if applicable • Provides transit/transfer/connection information/direction
Departure	Manages the departure gate, including boarding, information to crew and load control, securing the flight.	• Manages passenger on-load, including PRM, UMNR and any other special assistance or requests. • Documentation checks, if applicable • Secures the flight, including load information to crew • Open ramp safety and direction • Baggage monitoring (e.g., check baggage allowance and baggage reconciliation)
Connections	Coordinates inbound and outbound passenger movement and communication, including transit/transfer and connection passengers and baggage.	• Flight monitoring • Communicate passenger and baggage information • Provide transit/transfer/connection information/direction to passengers • Manage Irregular Operations (IRROPS) for transit/transfer/connection passengers
Baggage handling	Handles mishandled baggage and communicates with passengers and other stations.	• Processing of on-hand, missing, delayed and damaged baggage • Tracing of missing baggage • Forwarding of found baggage • Completion of reports • Knowledge of customs and regulatory requirements
Claims & Settlement	Processes baggage files/claims by providing financial settlement to passengers for mishandlings.	• Review of baggage claims • Communication with passengers • Claims settlements based on applicable tariff or convention

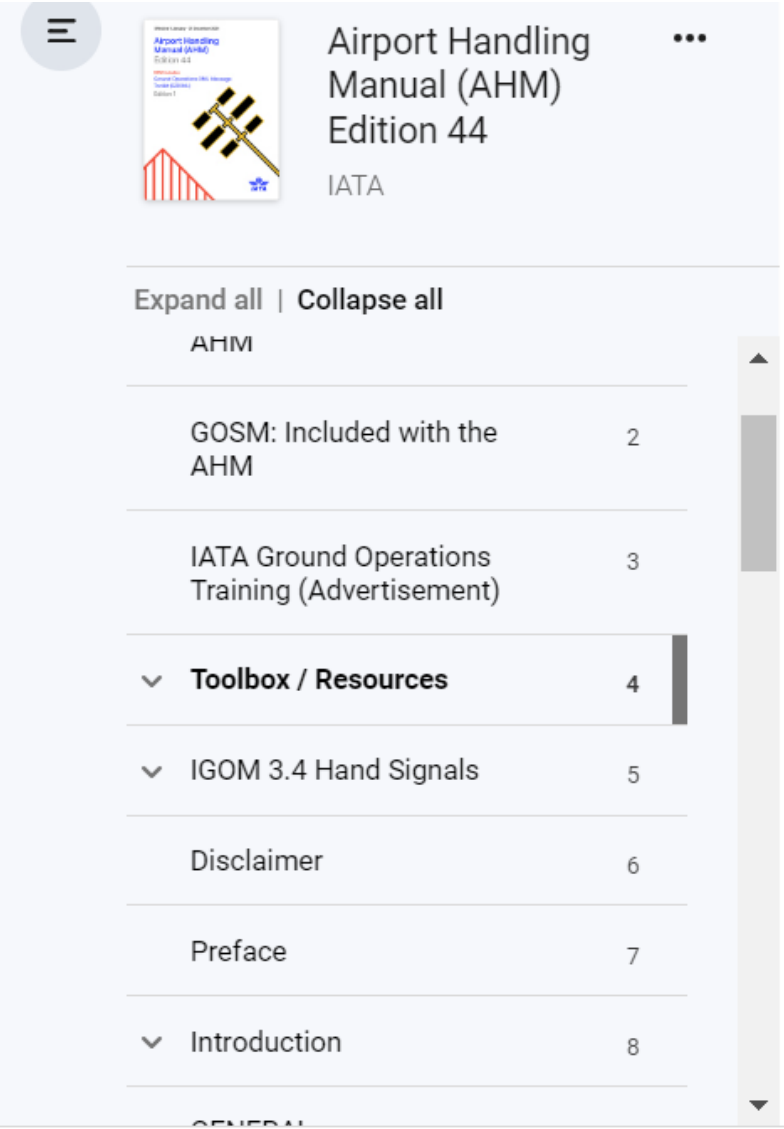
Courses and topics

- Passenger Handling
- Ramp Handling
- Load Control

PAX 03	PASSENGER SERVICES–BAGGAGE SERVICES
Course Description	This course provides information and instructions for mishandled baggage, including flight arrivals and report completion.
Prerequisites	GEN01; PAX01
Method of Training	Theoretical and Practical Training
Method of Assessment	Theoretical/Practical Assessment
Duration	
Topic Number	Topic Title
1.PAX03	On-hand Baggage
2.PAX03	Missing Baggage
3.PAX03	Delayed Baggage
4.PAX03	Damaged Baggage
5.PAX03	Pilfered Baggage
6.PAX03	Lost and Found Articles
7.PAX03	Rush Baggage
8.PAX03	Inbound Baggage
9.PAX03	Interline Baggage
10.PAX03	Standby Baggage
11.PAX03	Arrival of a Flight
12.PAX03	Connection, Transfer and Transit Baggage
13.PAX03	Customs and Regulatory Requirements
14.PAX03	IATA Baggage Descriptions
15.PAX03	Permanent Tags and Locator Devices
16.PAX03	Report Completion
17.PAX03	Customer Airline Liability
18.PAX03	Passenger Communication

PAX 04	PASSENGER SERVICES–BAGGAGE CLAIMS AND SETTLEMENT
Course Description	This course provides information and instructions for mishandled baggage, including flight arrivals and report completion.
Prerequisites	GEN01; PAX 01, PAX 03
Method of Training	Theoretical Training
Method of Assessment	Theoretical Assessment
Duration	
Topic Number	Topic Title
1.PAX04	Tracing Methods and Duration
2.PAX04	Customer Airline Liability
3.PAX04	Passenger Communication
4.PAX04	Passenger File Actions
5.PAX04	Customer Airline Central Baggage Facilities
6.PAX04	Montreal and Warsaw Convention, Airline Tariffs
7.PAX04	Claims Settlements
8.PAX04	Insurance Responsibility
9.PAX04	Fraudulent and Duplicate

AHM1110 Gap analysis toolkit



AHM 817 Standard Training Agreement

DOC AHM 820 Subcontracting Agreement - Form version 2

DOC AHM 830 Ground Handling Charge Note

DOC AHM 850 2022 Standard Inflight Catering Agreement

AHM Chapter 9 - Airport Handling GSE Specification

DOC AHM 908 Autonomous Vehicles Risk Assessment v1

ZIP GSE Maintenance Checklists

XLS AHM 994 Total Cost of Ownership Calculator

AHM Chapter 11 - Ground Operations Training Program

XLS AHM 1110 Ground Operations Training Toolkit - High Level

XLS AHM 1110 Ground Operations Training Toolkit - Detailed

XLS AHM 1120 Ground Operations Training Toolkit

ISAGO

ZIP ISAGO Checklists

PDF Correlation table between GOSM, IGOM and ICAO Doc. 10121

Four easy steps to implement AHM1110

1. Gap analysis against AHM1110

   Identify gaps

2. Align training program

   (close the gap)

3. Train staff

4. Keep up to date

Video
www.iata.org/ground-operations

Airlines manuals' updates frequency is unmanageable

How can we get assurance that providers treat our a/c with care

People are overwhelmed with amounts of airline specifics

How do we know that providers procedures are good enough

Lack of staff and the quality of staff candidate makes the scheduling impossible

Could we unify? 737 should be handled the same way irrespective location or operator

The same is not the same

The different might be the same

IGOM

Standardizes ground handling processes and procedures to reduce the complexity between working with multiple airlines, airports and ground service providers.

IGOM scope – frontliners

Passenger Handling

Baggage Handling

Aircraft General Safety / Servicing Operations

Aircraft Turn-Around

Load Control

Airside Safety Operational Oversight

IGOM revisions

- IGOM publication is a yearly publication except the 14th Edition
- The publication can be obtained either as a paper or digital copy
- A digital copy it can be obtained as a standard alone publication or as a combo with AHM
- IGOM is published in English, French and Spanish

IGOM Ed13

Valid till Dec 2025

55

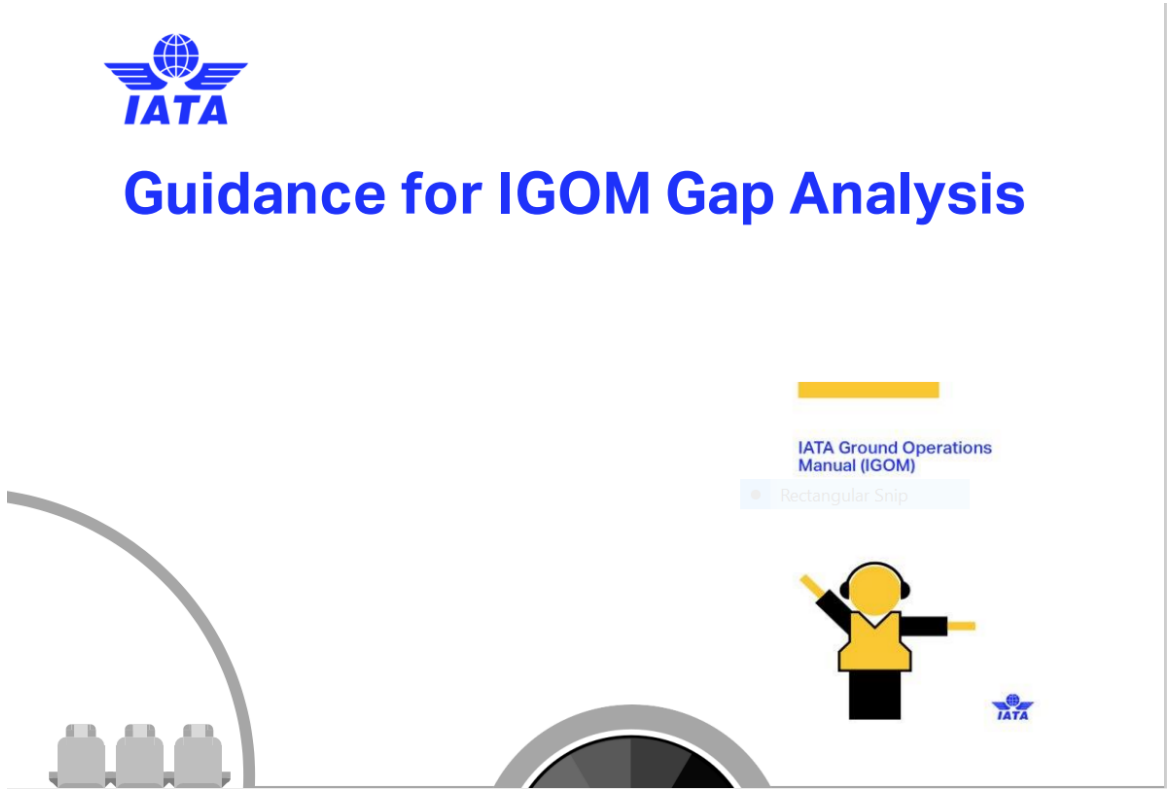
8 August 2024

Guidance for IGOM Gap Analysis

- The guidance for IGOM Gap Analysis has been published
  - IATA website
  - AHM/IGOM digital form - toolkit

- It guides a company on how to perform a gap analysis, reflecting on the entire process

- A Company needs to understand the terms used to perform the gap analysis to ensure a proper analysis is achieved



Performing Gap Analysis

Gap Analysis – self-assessment

Gap Analysis Assessment

Conformity

Variation

Out of Scope

Risk assessment is required for all variations from the safety critical procedures

Conformity

Conformity means a company is in alignment with the IGOM procedures and does not vary from the IGOM requirement.

- The wording in the user manual is identical to the IGOM wording.
- The wording of the user manual is identical, but with a different layout or numbering or structure
- The wording in the user manual is not identical to the IGOM wording, the overall meaning of the user procedure is similar to the IGOM. It includes all relevant IGOM requirements, and all the steps are followed in required order

Out of Scope

“Out of scope” means a user does not perform, provide, offer an operation/service/function within the IGOM scope of documented procedures.

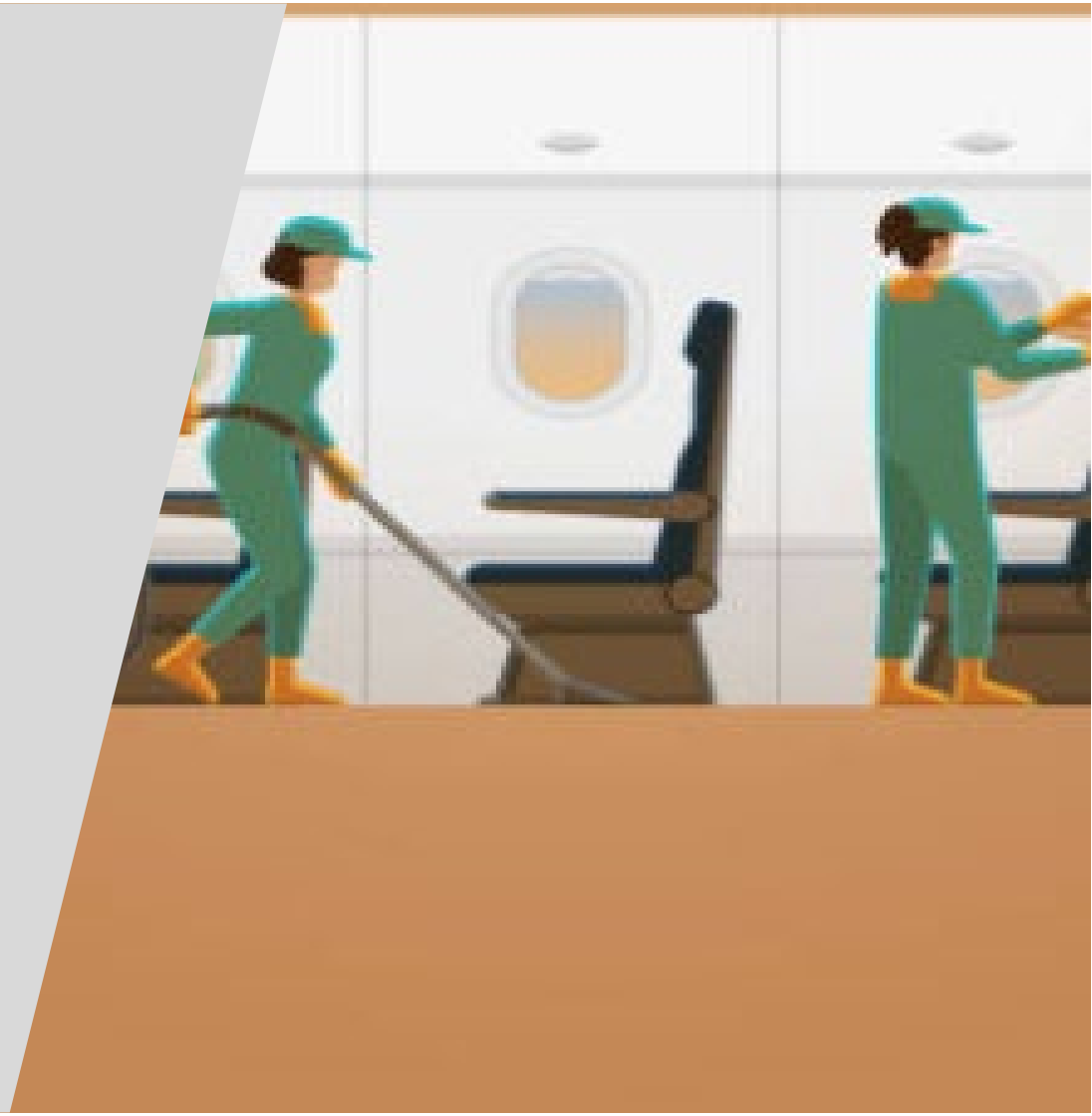
- Chapter level: If a user does not perform an entire operation, the entire relevant IGOM chapter will be marked “out of scope"
- Section level: if a user does not perform a certain activity corresponding to an entire section within a chapter, the relevant IGOM section will be marked “out of scope”.
- Sub-section: when a user does not perform an activity or activities within a sub-section this will be identified as “out of scope”

Out of Scope

Out of Scope

IGOM 3.7 Aircraft Cleaning and Disinfection

The company does not perform aircraft cleaning and disinfection



Variation

Variation means the company procedure is not the same as the IGOM procedure. Company procedures can be less, or more restrictive, or requirements can be different from the procedures described in the IGOM.

- User procedure includes additional requirements than IGOM
- User procedure includes less requirements than IGOM
- User have different, alternative, and unique procedures, not addressed in IGOM

Clarification on variation

- User procedure and IGOM procedures have the same overall meaning but have different wording, this is not a variation, it is conformity
- If IGOM procedures are in a list format, (such as: a, b, c, d), but user manual has defined the same procedure in paragraph format or with a different structure, but the overall meaning is the same, this is not a variation, it is conformity.
- If the user does not perform any particular operation or function or service - this is not a variation, it is out of scope.
- Cabin cleaning checklist are samples only in IGOM. Airlines/GHSPs are free to either adopt same or use their own formats including content of checklist.
- If the user has procedures defined in more than one operational manual and document, for example, in SOPs/work instructions. This is not a variation so long as all the document references are provided, and the procedures are aligned with IGOM.

Operational portal

8 August 2024

Operational Portal (former IGOM)

Why we drive it?

Need to utilize IGOM as the central point of reference

- Streamline the self-assess against IGOM
- Declare adherence to IGOM requirements
- Share any variations
- Monitor implementation status & variation globally
- Data source for the ongoing IGOM development

Enhancements

Rebranding IGOM to OPS Portal

Incorporation of multiple standards

- AHM Ch.6 Safety & Management
- AHM1110 Ground Ops training program
- GOSM-Cargo
- IATA Cargo Handling Manual (ICHM)

Introduce an auditing tool for ISAGO

- validate the self-assessed gap analysis submitted through the portal

Enhancement of current look and feel

Incorporation of multiple reports and dashboards

Ability to create hierarchy, gap and variation sharing groups

Portal Enhancement Output

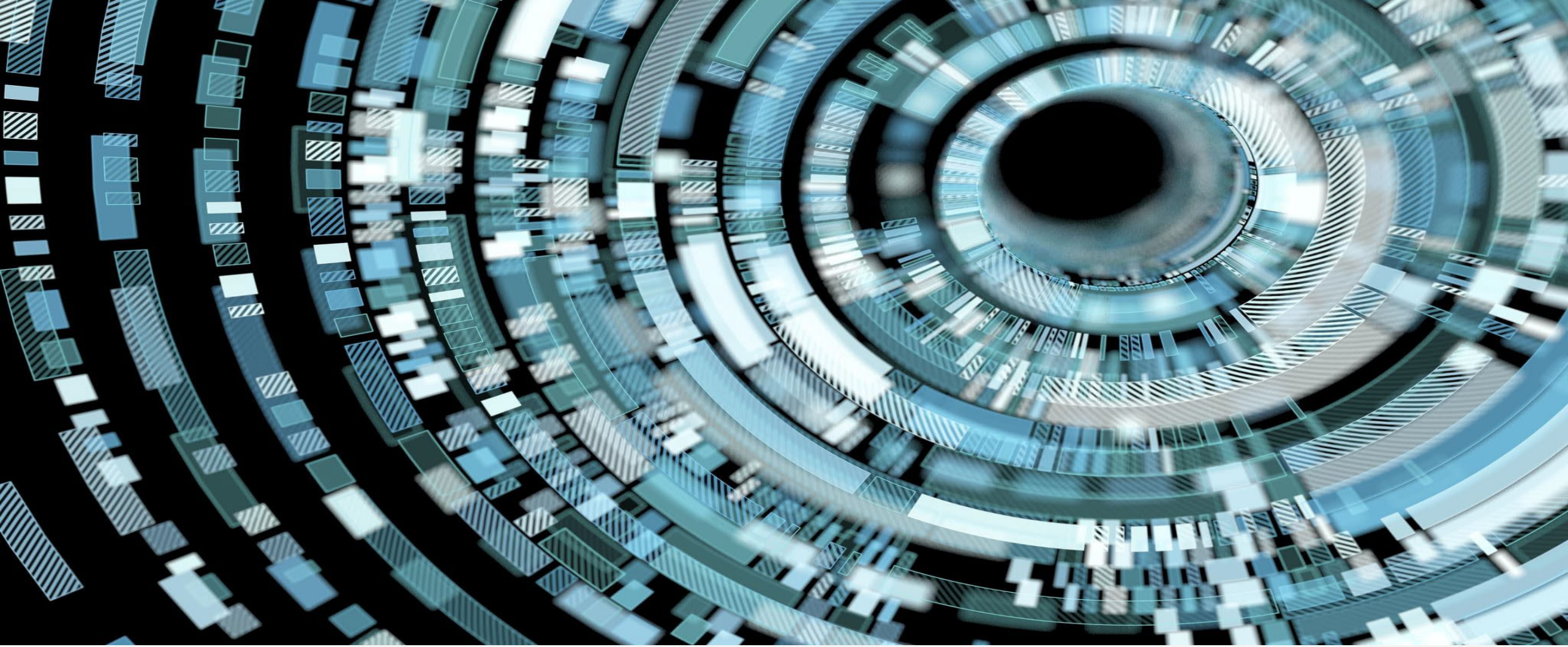
The enhancement project will be split into two parts

Part 1 – launch September 2024

- The initial phase of the project encompasses the following functionalities and features:
  - Enhancements to the user interface, look & feel
  - Gap Analysis for AHM Ch.6, AHM1110, GOSM-CGM
  - Detailed variation report
  - Introduction of hierarchy groups creation capability
  - Ability to create gap and variation sharing groups.
- This phase of the enhancement project is scheduled for a go-live date in mid-September.

Part 2 – estimated for Q1/2 2025

- The second phase of the project will encompass the following functionalities and features:
  - Documentation assessment
  - Users' dashboards
  - Users & IATA reportsd
  - Systems and e-mail notifications
- This phase of the enhancement project is expected to a go-live date in 2025 Q1-Q2



DAQCP

IATA De/Anti-icing Quality Control Pool of airlines

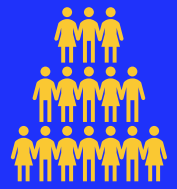
CELEBRATING 25 YEARS OF DAQCP

IATA DAQCP

DAQCP FACTS & FIGURES

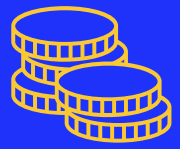
CELEBRATING 25 YEARS OF DAQCP

The Pool conducts an average of **650** inspections per year



The Pool consists of **150** member airlines with more than **190** inspectors

Each active member airline has unrestricted access to all DAQCP inspection reports across the globe



DAQCP is in good financial shape - does not charge membership fee and provides free recurrent training to all inspectors

The Pool supplies each inspector with standard equipment to ensure uniformed auditing process

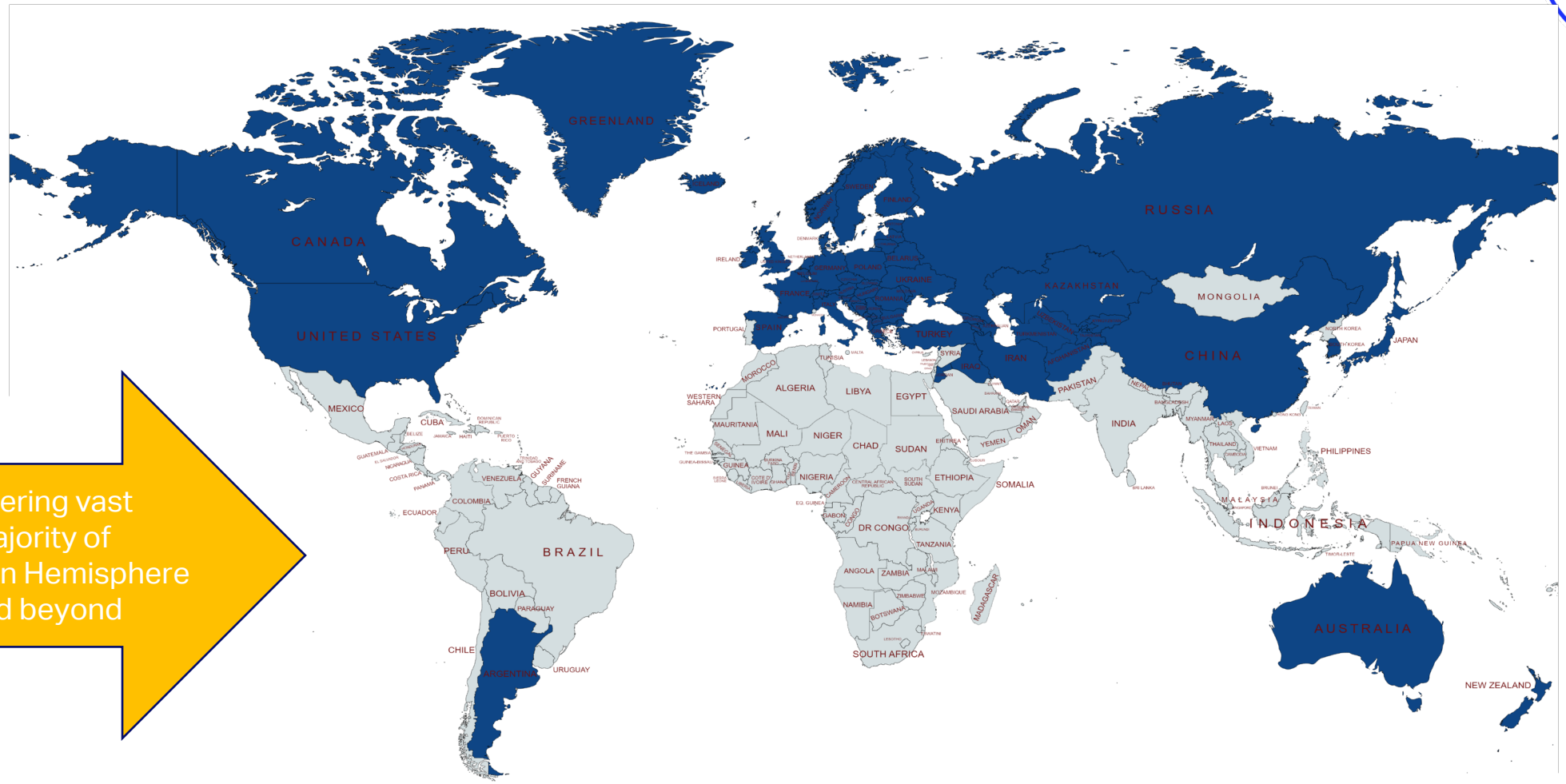
DAQCP membership combined with data analysis & actions ensures conformity with relevant ISARPs

DAQCP provides airlines with vital safety data used in support of operations as well as SMS & QMS

8 August 2024

IATA DAQCP

DAQCP Geography



Covering vast majority of Northern Hemisphere and beyond

Global De-Icing Standard

Global acceptance

- Endorsed by ICAO
- Recognized by vast majority of NAAs including EASA
- AS6285, AS6286, AS6332 – comprehensive set of requirements

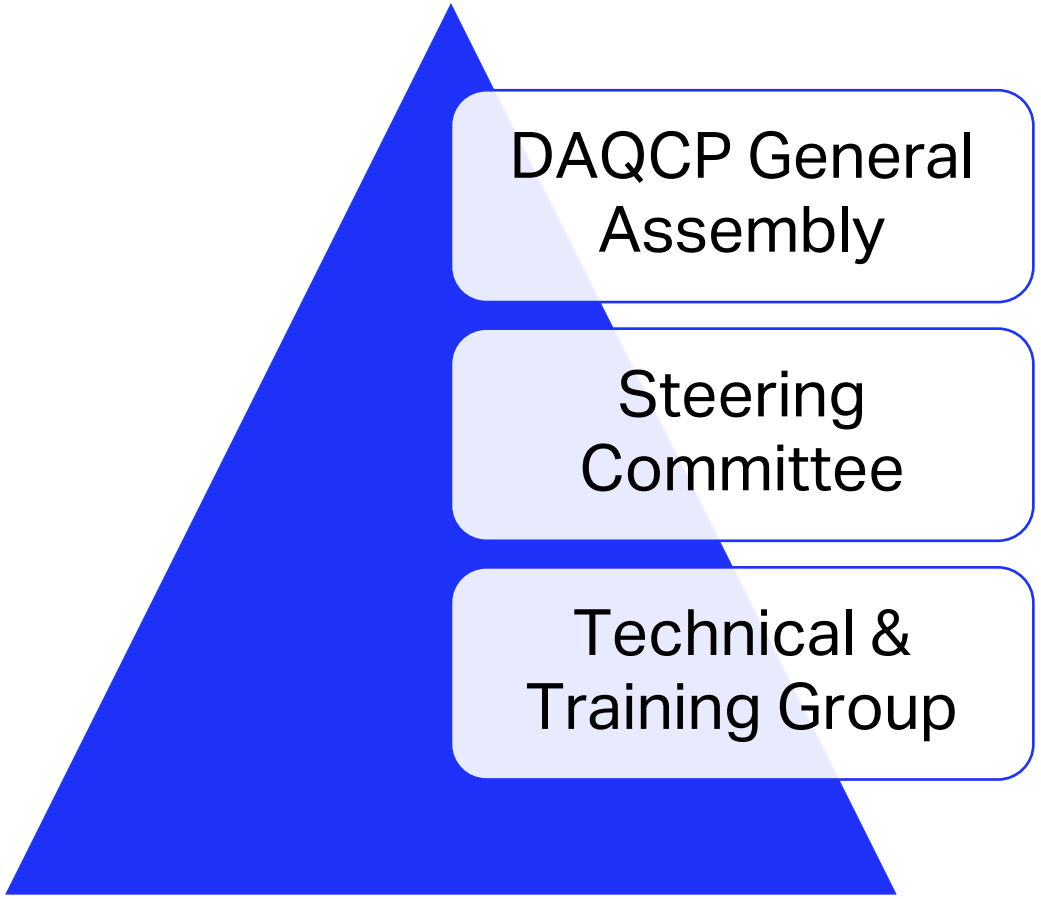
Unification & Standardization

- Common de-icing standard recognized globally
- Baseline for DAQCP member airlines' documentation
- Single source of procedures for GSP

Inclusiveness

- SAE G12 principles
- Participation of operators & OEMs
- Participation of NAAs

Governance



DAQCP General Assembly

Annual meeting of representatives of each member airline:
- General evaluation of the work and financial performance
- Latest developments in the deicing/anti-icing areas
- Policy, procedures and standards for DAQCP

Steering Committee

Day –to-day management and administration of the Pool:
- Airline Memberships
- Checklists and standards
- Projects and performance

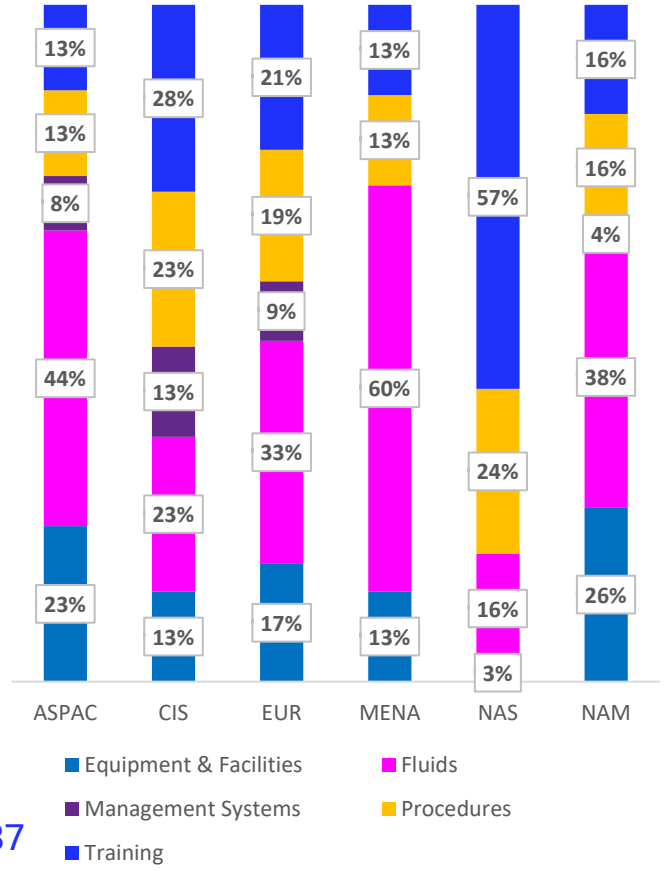
Technical & Training Group

Technical SMEs and Trainers:
- Candidate auditors training and evaluation
- Support with technical publications and know-how
- Training Materials

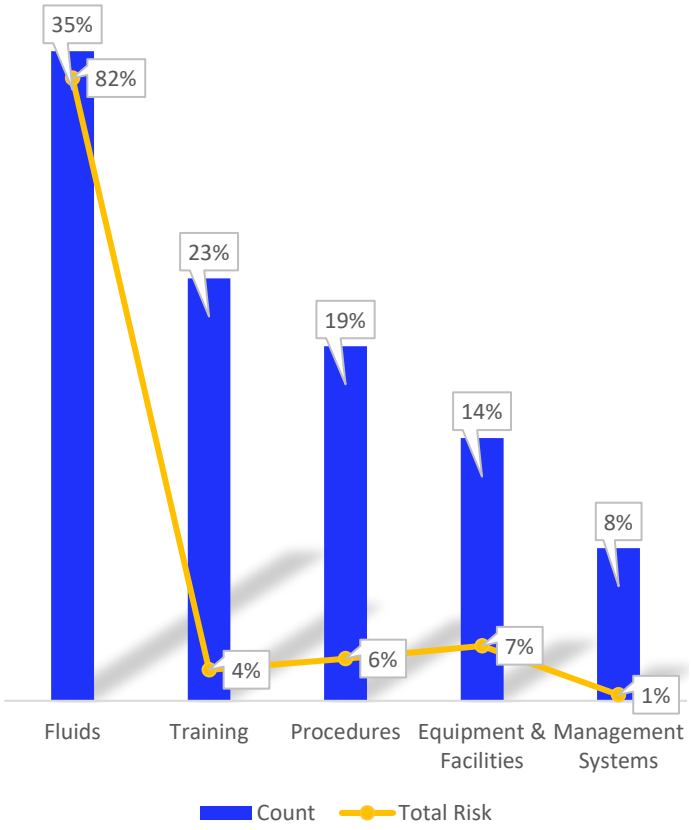
Safety & Compliance Data

DAQCP collects, analyses and shares vital safety & compliance data with member airlines:

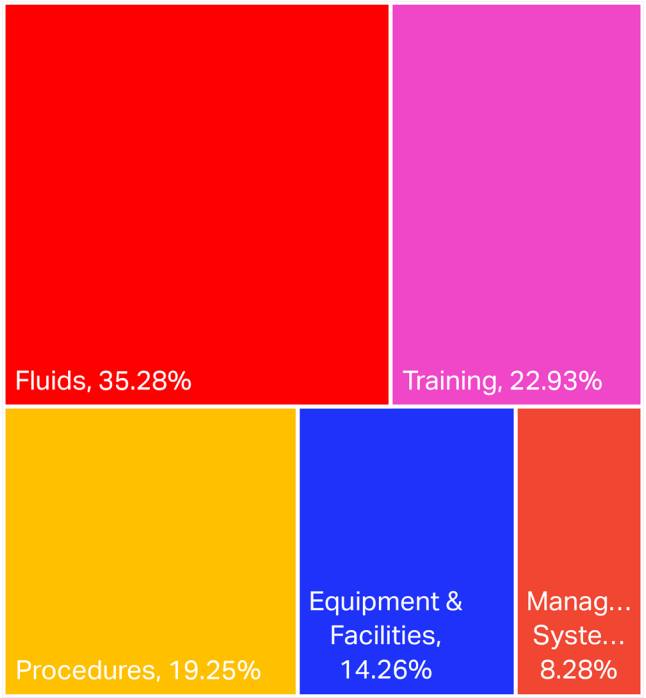
REGIONAL BREAKDOWN



EMERGING RISKS



SIGNIFICANT HAZRDS



Joining DAQCP

Membership Application

Signing MLA

Inspector & Rep Training

2 Evaluation Audits

One time joining fee USD 5000

One time fee of USD 2500 per attendee

Unrestricted access to DAQCP database during qualification

Thank you

Thank you for the opportunity to meet with you.

Do you have any questions?

DAQCP@IATA.ORG

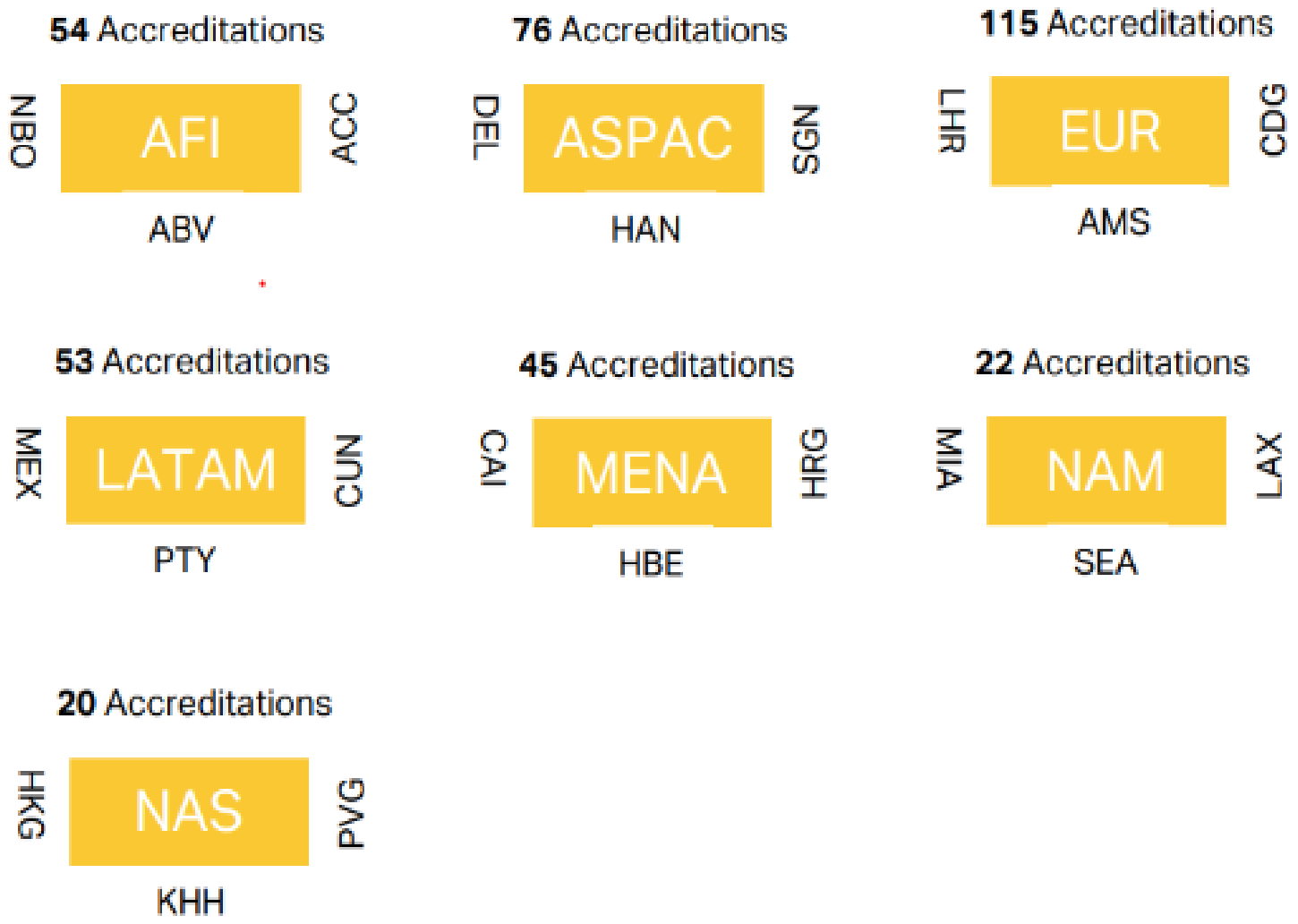
ISAGO – IATA Safety Audit for Ground Operations

Driving more benefits for airlines & GHSPs

By driving standardization and adopting global industry standard for ground operations


150+
ISAGO airline members
360+
ISAGO accredited stations
220+
Airports
IATA

Regional station accreditations



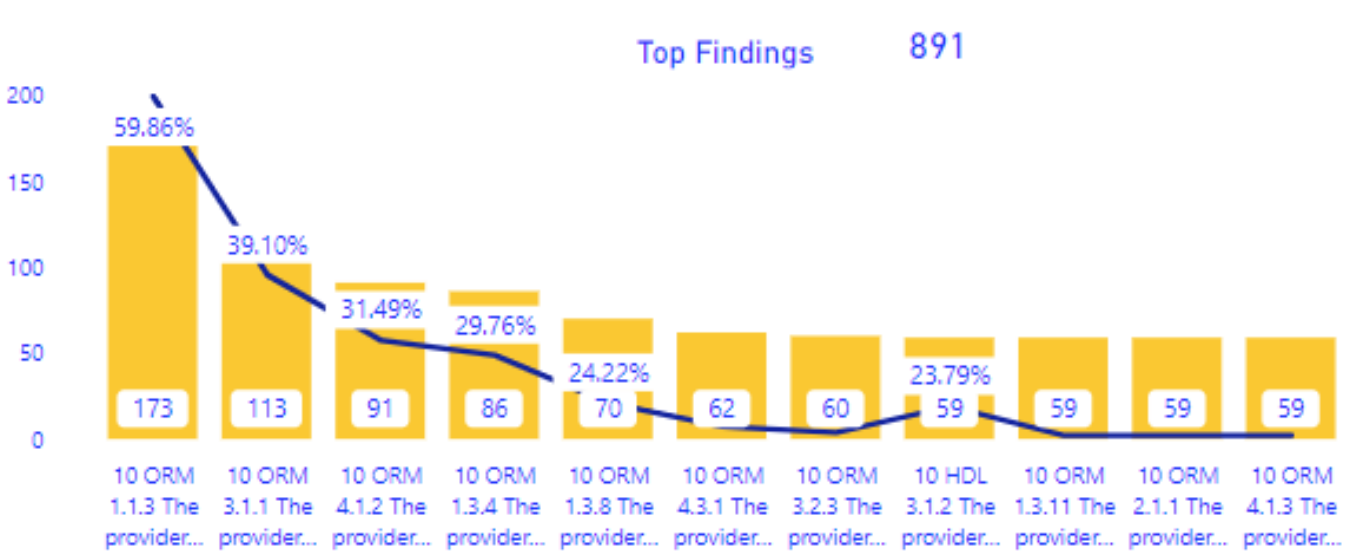
ISAGO audit results

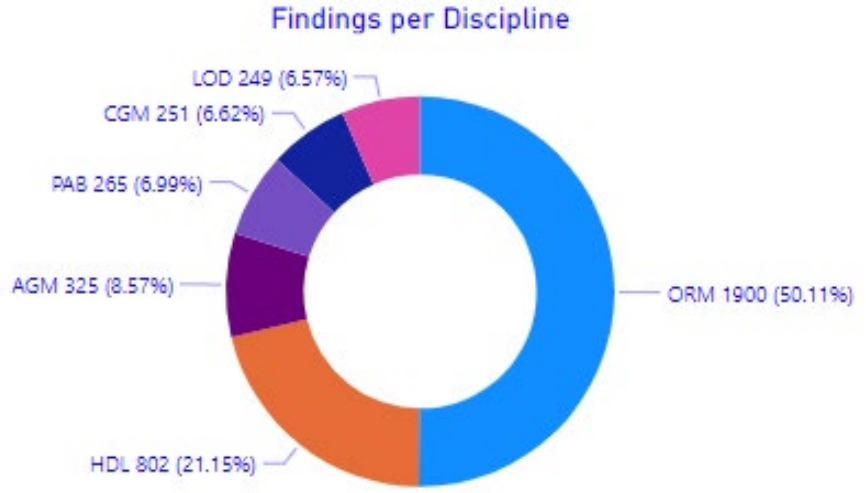
CoPA implementation

SMS implementation

ISAGO 2023 top findings

ISAGO All disciplines
Total 3,972 findings in operational disciplines
ISAGO standards Edition10
Data range: 2023





ORM 1.1.3 SMS Implemented and integrated **(- 4% vs 2022)**
ORM 3.1.1 Control of internal and external documentation **(+8%)**
ORM 4.1.2 Training (prog) prior to been assigned **(Same)**
ORM 1.3.4 Risk mitigation program impl. and integrated **(+6%)**
ORM 1.3.8 Process to address findings **(+2%)**

ORM 4.3.1 SMS trained (basic and advanced) personnel **(+3%)**
ORM 3.2.3 Documentation accessible to ops personnel **(+3%)**
HDL 3.1.2 Operational documentation accessible to all stations
ORM 1.3.11 Safety Assurance Program **(+1%)**
ORM 2.1.1 GSE maintenance
ORM 4.1.3 Recurrent training program for personnel currency **(Same)**

ISAGO recognition list

Name of Entity	Type of Entity	Country	Region	Type of Commitment	Year
AENA	Airport Authority	Spain and Canary Islands	EUR	Generic Support Doc	2022
Aeropuerto Internacinal de Quito	Airport Authority	Ecuador	LATAM/CAR	Generic Support Doc	2010
Aeropuerto Internacional de Tocumen, Panama	Airport Authority	Panama	LATAM/CAR	Generic Support Doc	2015
Agence Nationale de l'Aviation Civile du Togo (ANAC)	National Aviation Authority (NAA)	Togo	AFI	MoU	2022
Airport Authority Hong Kong	Airport Authority	Hong Kong (SAR), China	NASIA	MoU	2023
Airport International Mexico City	Airport Authority	Mexico	LATAM/CAR	Regulation	2021
Amsterdam Schiphol Airport	Airport Authority	Netherlands	EUR	Regulation	2022
Aviation Administration of Kazakhstan	National Aviation Authority (NAA)	Kazakhstan	CIS	MoU	2023
Civil Aviation Affairs of the Kingdom of Bahrain	National Aviation Authority (NAA)	Bahrain	MENA	MoU	2016
Civil Aviation Agency of Latvia	National Aviation Authority (NAA)	Latvia	EUR	Generic Support Doc	2022
Civil Aviation Authority- Italy (Ente Nazionale Per L'Aviazione Civile)	National Aviation Authority (NAA)	Italy	EUR	Generic Support Doc	2022
Civil Aviation Authority of Macao SAR	National Aviation Authority (NAA)	Macao	NASIA	MoU	2019
Civil Aviation Authority of Mongolia	National Aviation Authority (NAA)	Mongolia	NASIA	MoU	2019
Civil Aviation Authority of the Republic of Moldova	National Aviation Authority (NAA)	Moldova	EUR	MoU	2019
Civil Aviation Authority UK (CAA)	National Aviation Authority (NAA)	United Kingdom	EUR	Regulation	2008
Civil Aviation Organization of Iran	National Aviation Authority (NAA)	Iran, Islamic Republic of	MENA	MoU	2017
Civil Aviation Regulatory Commission (CARC, Jordan)	National Aviation Authority (NAA)	Jordan	MENA	MoU	2018
Copenhagen Airports A/S	Airport Authority	Denmark	EUR	Generic Support Doc	2022
DGAC Mexico	National Aviation Authority (NAA)	Mexico	LATAM/CAR	Regulation	2014
Direccion General De Aviacion Civil of Costa Rica	National Aviation Authority (NAA)	Costa Rica	LATAM/CAR	Generic Support Doc	2011
Direction Generale de l'Aviation Civile of France	National Aviation Authority (NAA)	France	EUR	Generic Support Doc	2007
Directorate General of Civil Aviation (DGCA) of Lebanon	National Aviation Authority (NAA)	Lebanon	MENA	MoU	2018
Eastern Caribbean Civil Aviation Authority	Aviation Association	Not Applicable	LATAM/CAR	MoU	2022
Egyptian Civil Aviation Authority (ECAA)	National Aviation Authority (NAA)	Egypt	MENA	MoU	2019
European Civil Aviation Conference (ECAC)	Aviation Association	Not Applicable	EUR	Generic Support Doc	2012
Georgian CAA	National Aviation Authority (NAA)	Georgia	CIS	MoU	2019
Guangdong Airport Authority	Airport Authority	China	NASIA	MoU	2023
Heathrow Airport Limited (HAL)	Airport Authority	United Kingdom	EUR	Regulation	2022
International Airport CLUJ-NAPOCA	Airport Authority	Romania	EUR	Generic Support Doc	2011
Interstate Aviation Committee (Russian MAK)		Russia	CIS	MoU	2009
Ministry of Transportation, General Directorate of Civil Aviation - Tu	National Aviation Authority (NAA)	Turkey	EUR	Regulation	2010
Montego Bay Jamaica - Sangster International Airport	Airport Authority	Jamaica	LATAM/CAR	Regulation	2022
Nigerian Civil Aviation Authority (NCAA)	National Aviation Authority (NAA)	Nigeria	AFI	MoU	2009
Seattle-Tacoma International Airport	Airport Authority	United States of America	NAM	Regulation	2022
The Jamaica Civil Aviation Authority	National Aviation Authority (NAA)	Jamaica	LATAM/CAR	MoU	2021
The Kuwait Directorate General of Civil Aviation	National Aviation Authority (NAA)	Kuwait	MENA	MoU	2019
Toronto Pearson Airport	Airport Authority	Canada	NAM	Regulation	2013
Venice Marco Polo Airport	Airport Authority	Italy	EUR	Generic Support Doc	2022

Data as of 22FEB24

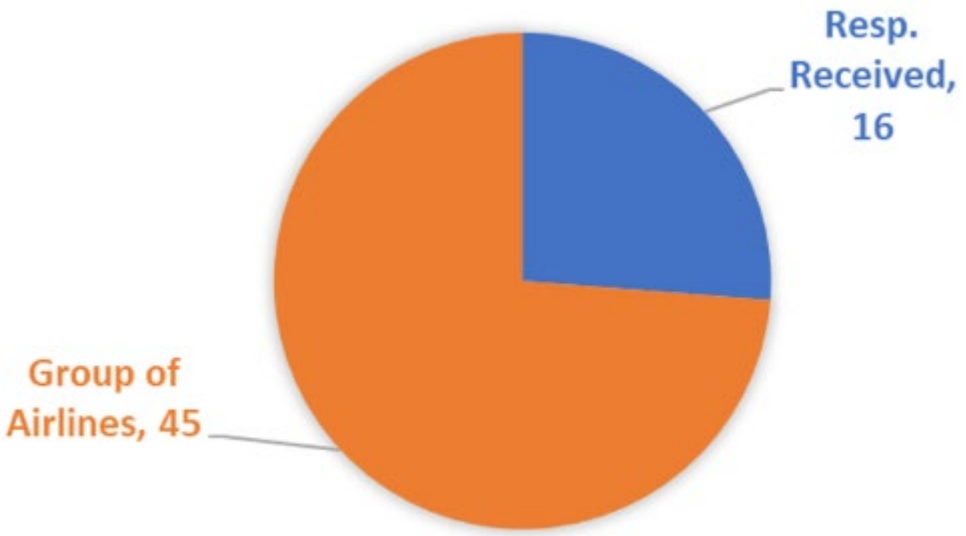
Ongoing discussions for additional MoUS with:
Poland, France , Greece, Turkey and Luxembourg

Ottawa International Airport
Transport Canada

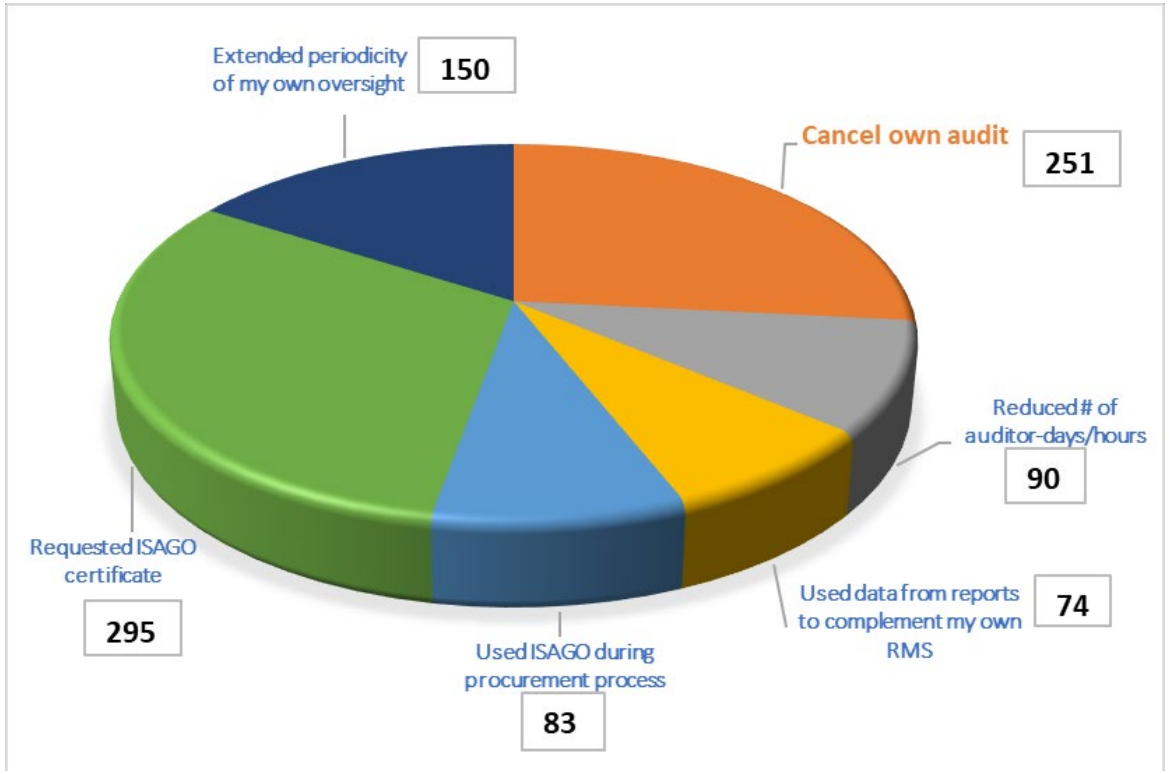
IATA

Airlines' Benefits data analysis

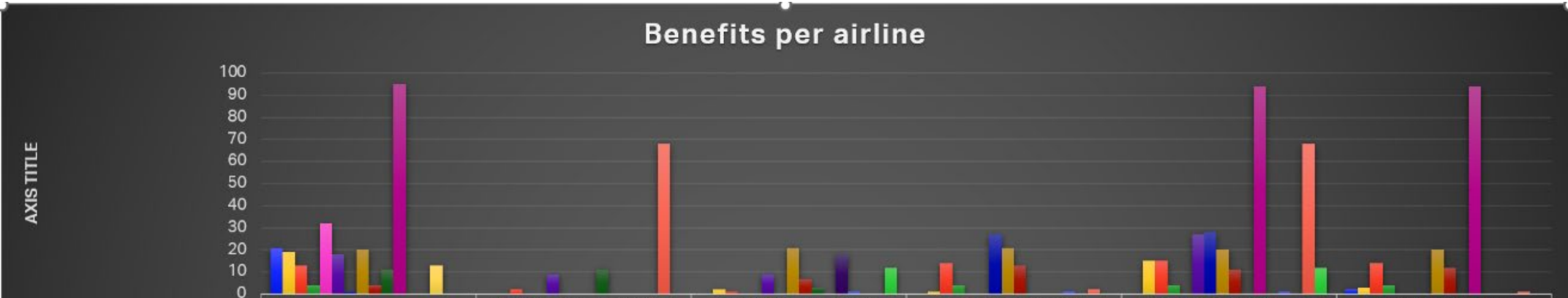
Number of members



Cumulated data per category and # STN

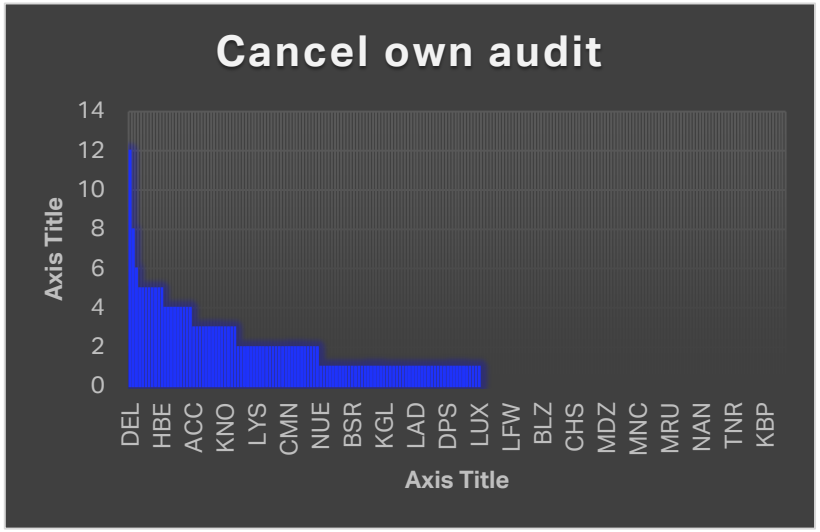


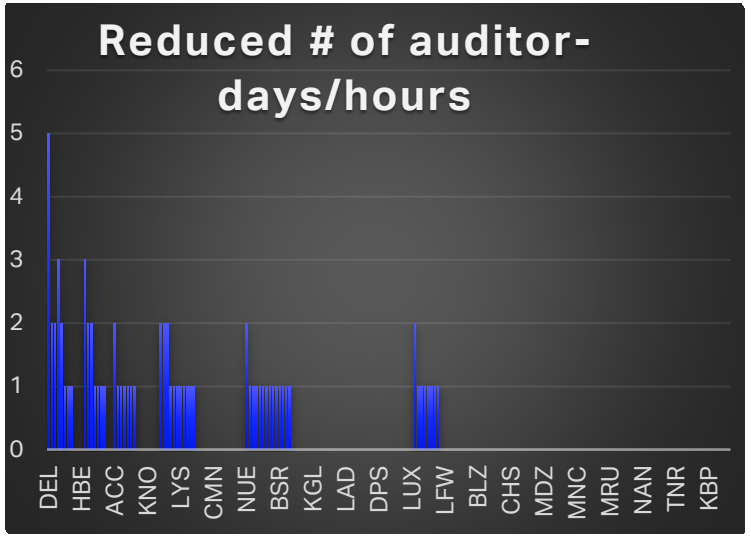
Airlines' benefits data analysis

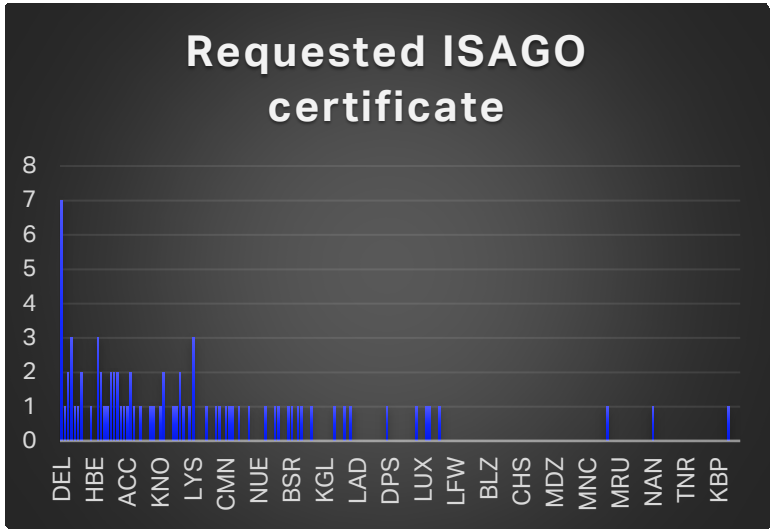


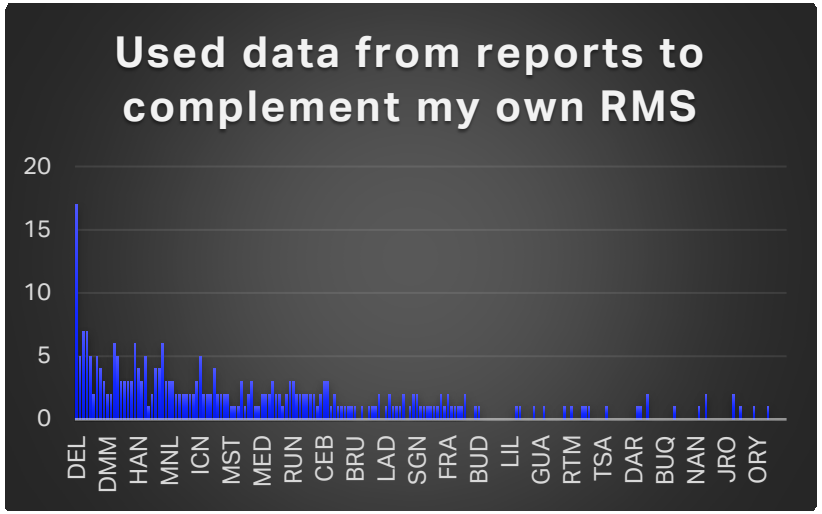
Cancel own audit	Extended periodicity of my own oversight	Reduced # of auditor-days/hours	Requested ISAGO certificate	Used data from reports to complement my own RMS	Used ISAGO during procurement process
21	0	0	0	0	2
19	0	2	1	15	3
13	2	1	14	15	14
[illegible]	0	0	4	4	4
[illegible]	0	0	0	0	0
18	9	9	0	27	0
1	0	0	27	28	0
20	0	21	21	20	20
4	0	7	13	11	12
[illegible]	11	3	0	0	0
[illegible]	0	0	0	[illegible]	[illegible]
0	0	18	0	0	0
0	0	1	1	1	0
13	0	0	0	0	0
0	[illegible]	0	2	[illegible]	1
0	0	12	0	12	0

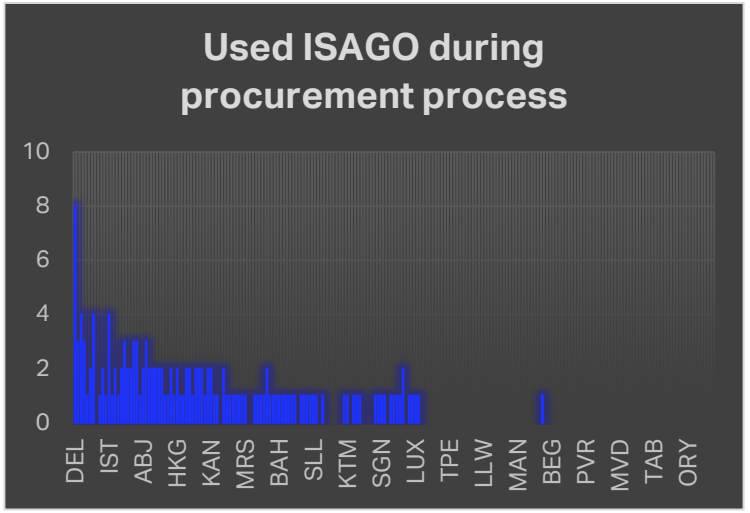
TOP benefited STNs per airlines' benefits

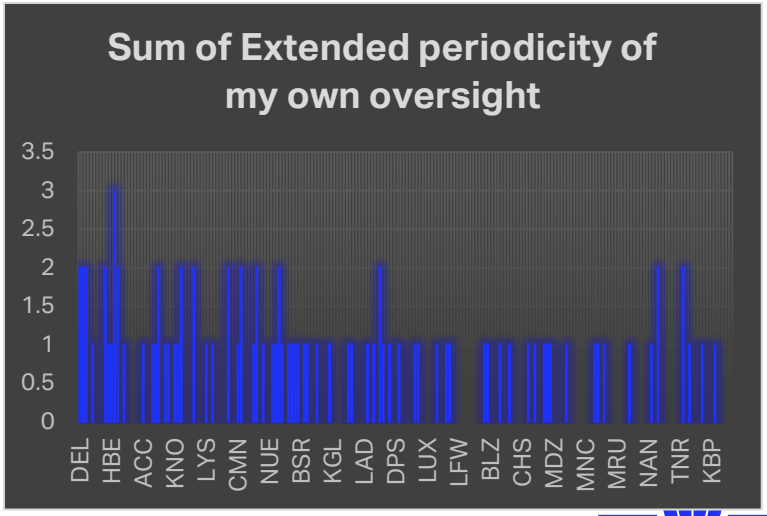












ISAGO in 2025 and beyond

Standards management change

Today

- GOSM Ed.10 contains many **generic standards:** provider shall have process, program procedure…
- AHM and IGOM are listed in the Guidance Material (GM) as an acceptable means of conformity / one way to conform to the GOSARP not necessarily the only way
- Ongoing alignment between IGOM, AHM and GOSM needed to be maintained but was not always accurate
- Scope: ORM, PAB, LOD, HDL, AGM, CGM

Tomorrow

- ISAGO standards will be the industry requirements as published in AHM, IGOM, ICHM
- The ISAGO checklist will mirror the industry requirements
- Checklist / standards transformation:
  - ORM - AHM 600 & AHM 1100 & AHM 900 & GSE fleet declaration
  - PAX – IGOM 1
  - BAG – IGOM 2
  - RMP – IGOM 3 & 4
  - LOD – IGOM 5
  - CGM – ICHM
- High level checklist available in the AHM and IGOM toolkit
- Detailed checklist - available in audit software

Audit assessment method change

Today

- ISAGO checklists require an assessment of documentation and implementation to reach conformity with GOSARPs
- ISAGO measures alignment of MHQ processes with stations
- ORM assessment is done during MHQ audit to cover organization and management processes for the entire network
- A documentation assessment for all applicable operational disciplines is also part of the MHQ audit
- Implementation assessments happen during STN audit for all audit disciplines including an assessment of local variations
- CTN audit requires combined documentation/implementation assessment
- Assessments are recorded in the audit software

Tomorrow

- GHSP will be required to adopt AHM, IGOM, ICHM industry requirements
- Prior to each audit, the GHSP will be required to submit or update a gap analysis with industry standards using an online tool (OPS Portal)
- Gap analysis can be done by MHQ or each STN – decision of each GHSP
- Gap analysis can be modified or cloned to save time / manpower
- Gap analysis will require recording a GHSP's documentary references
- Gap analysis' accuracy will be validated remotely by the auditors (sampling method will apply)
- Completed and validated gap analysis will be equivalent to the documentation assessment
- The revamped ISAGO checklist will be used in the audit software for an implementation assessment

Registry management change

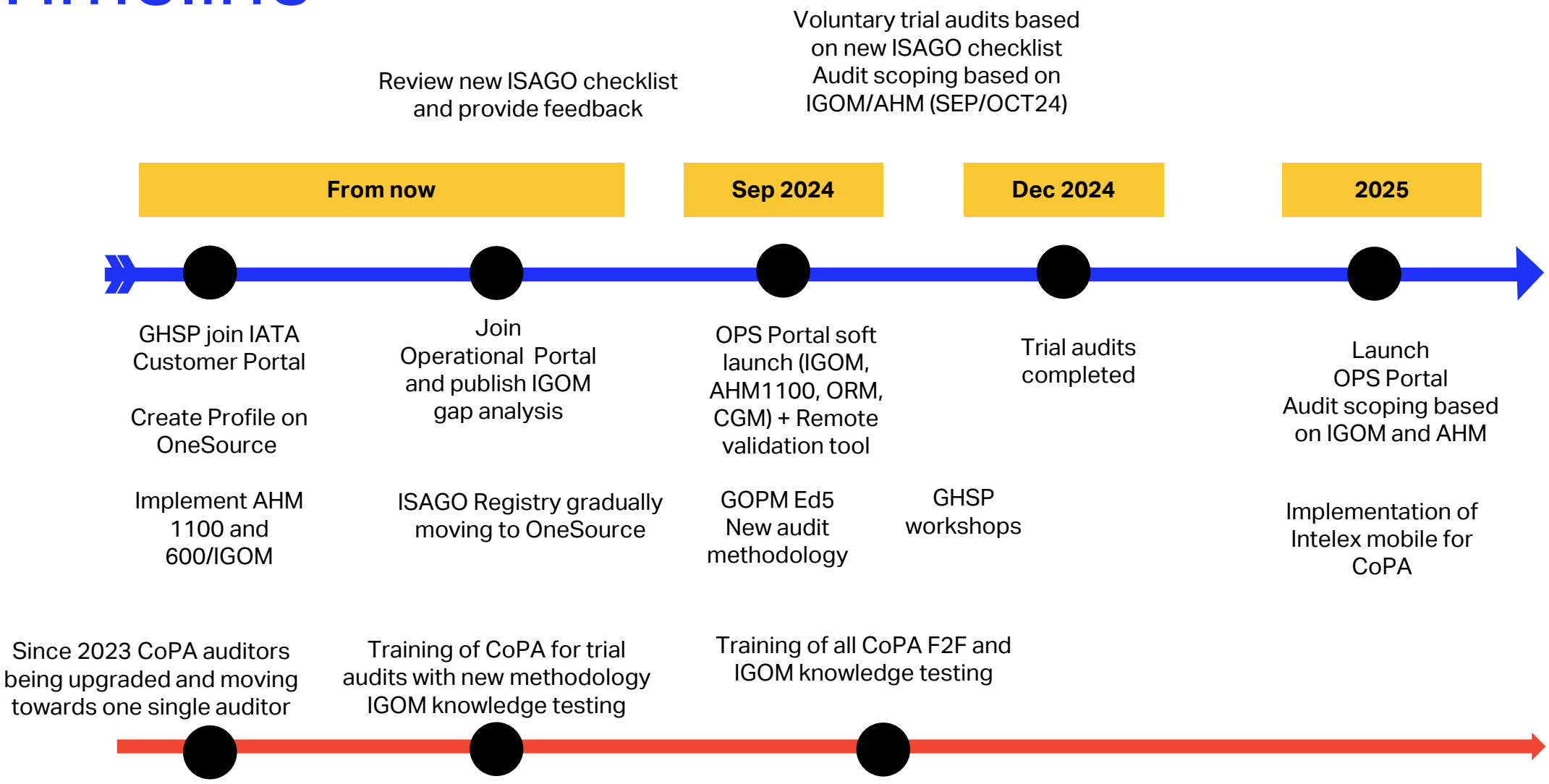
Today

- ISAGO Registry is private, accessible to ISAGO member airlines only and to individual GHSP
- All ISAGO reports are accessible to all airlines that signed the ISAGO agreement
- Certificates and reports are shared via e-mail
- Requests from regulators or airports to share an audit report are resolved via e-mail

Tomorrow

- GHSPs will be required to create a profile on One Source
- ISAGO accreditation details will be added to the GHSP's profile and will be publicly available (name, services, location, accreditation validity)
- Access to the ISAGO certificate and link to ISAGO report through One Source will be controlled by GHSP
- ISAGO member airlines will continue to have unlimited access to the ISAGO reports once they have signed the ISAGO Airline member agreement

Timeline


Review new ISAGO checklist and provide feedback
Voluntary trial audits based on new ISAGO checklist Audit scoping based on IGOM/AHM (SEP/OCT24)
From now
Sep 2024
Dec 2024
2025
GHSP join IATA Customer Portal
Create Profile on OneSource
Implement AHM 1100 and 600/IGOM
Join Operational Portal and publish IGOM gap analysis
ISAGO Registry gradually moving to OneSource
OPS Portal soft launch (IGOM, AHM1100, ORM, CGM) + Remote validation tool
GOPM Ed5 New audit methodology
GHSP workshops
Trial audits completed
Launch OPS Portal Audit scoping based on IGOM and AHM
Implementation of Intelex mobile for CoPA
Since 2023 CoPA auditors being upgraded and moving towards one single auditor
Training of CoPA for trial audits with new methodology IGOM knowledge testing
Training of all CoPA F2F and IGOM knowledge testing

ISAGO 2025

GSE fleet validation program

- Reviewing fleet of a GHSP for station audits
- Although assessment done via ISAGO, no impact on ISAGO audit results
- By default, in scope for GHSP station with RAMP in scope
- Successful validation will result in a separate recognition in addition to ISAGO
- Launch via ISAGO - 2025

IATA Training passport

AHM 1110 adoption > validation via ISAGO > records for employees > mutual recognition

AHM Ed.44

- Concept introduced
- Companies to provide training records to employees (GOS to define period when mandated)
- AHM1110 TRN implementation checklist (AHM/IGOM toolbox)
- AHM 1110 excel gap analysis in toolbox

OPS portal

- AHM1110 added Jul – Sep

Launch via ISAGO – 2025

EASA – reference to AHM for the training

Summary - Why ISAGO

Safety

- Aligns with ICAO GH Manual objectives and GH provisions
- Supports GHSPs in implementation of SMS
- Improves global safety levels
- Reduces ground damage
- Improves personal safety
- Continued operational overview on network through OPS Portal

Effectiveness

- Supports standardization (IGOM/ AHM)
- Supports GHSP/ airline risk mgt. & outsourcing oversight
- Minimizes the number of duplicate audits by airlines
- Drives adoption of industry best practices by the GHSPs (IGOM/ AHM)
- Organization-wide assessment
- Reduces operational variations (IGOM/ AHM)

Value

- High quality audits
- Developed with industry experts
- Enhances insurance risk profile
- Global presence
- Industry alternative to state regulation
- Operational network overview for GHSPs and Airlines
- Increased number of regulator endorsement

Questions

Thank you!

Tuesday August 6th

6. Mitigating Ground Damage

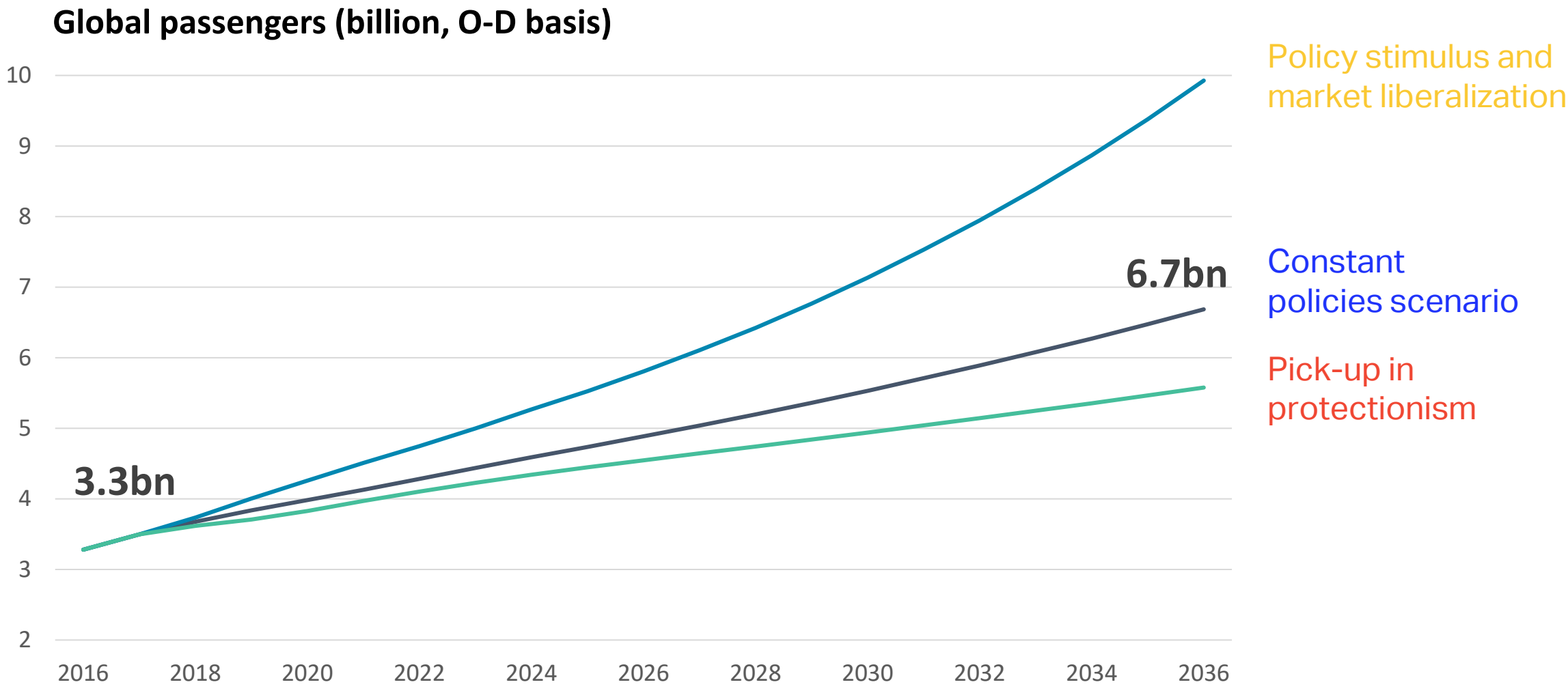
7. Ramp Digitalization and Automation

8. Revolutionizing Baggage Operations

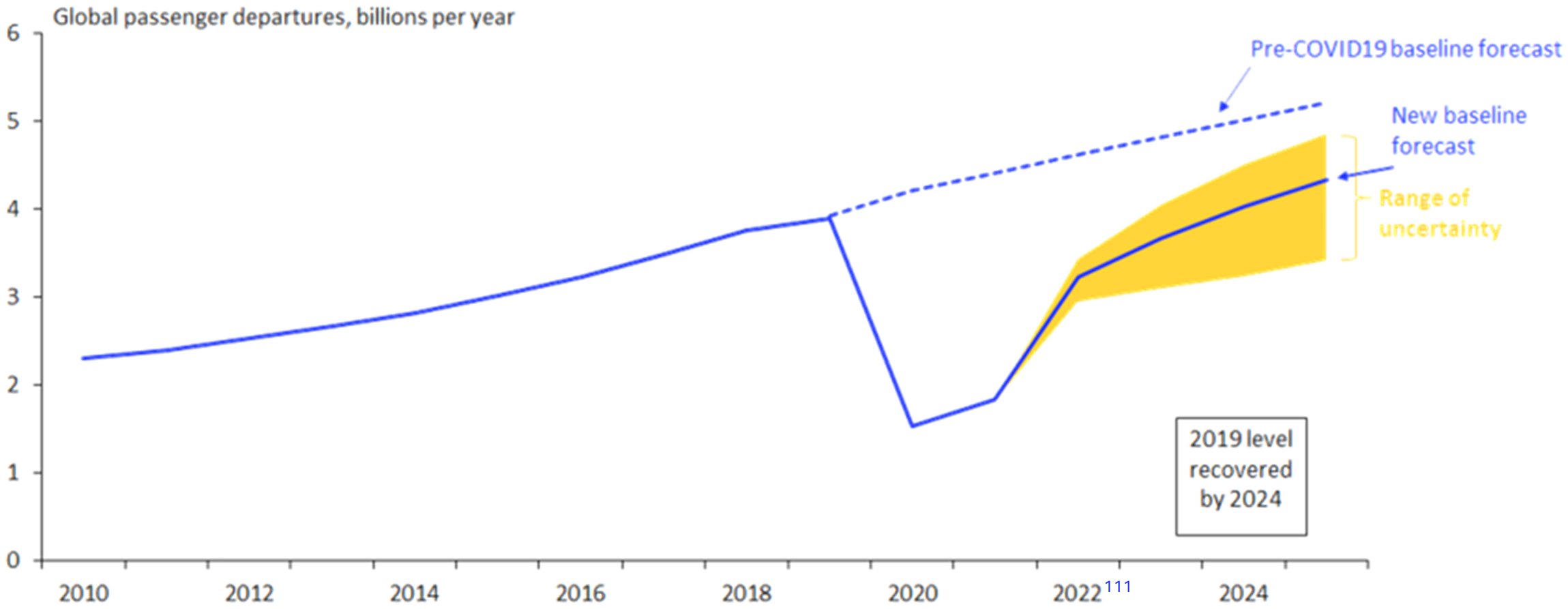
9. Baggage Tracking

All about GSE – enhanced, green and autonomous

KEY CONTEXT – TRAFFIC FORECAST PRE COVID

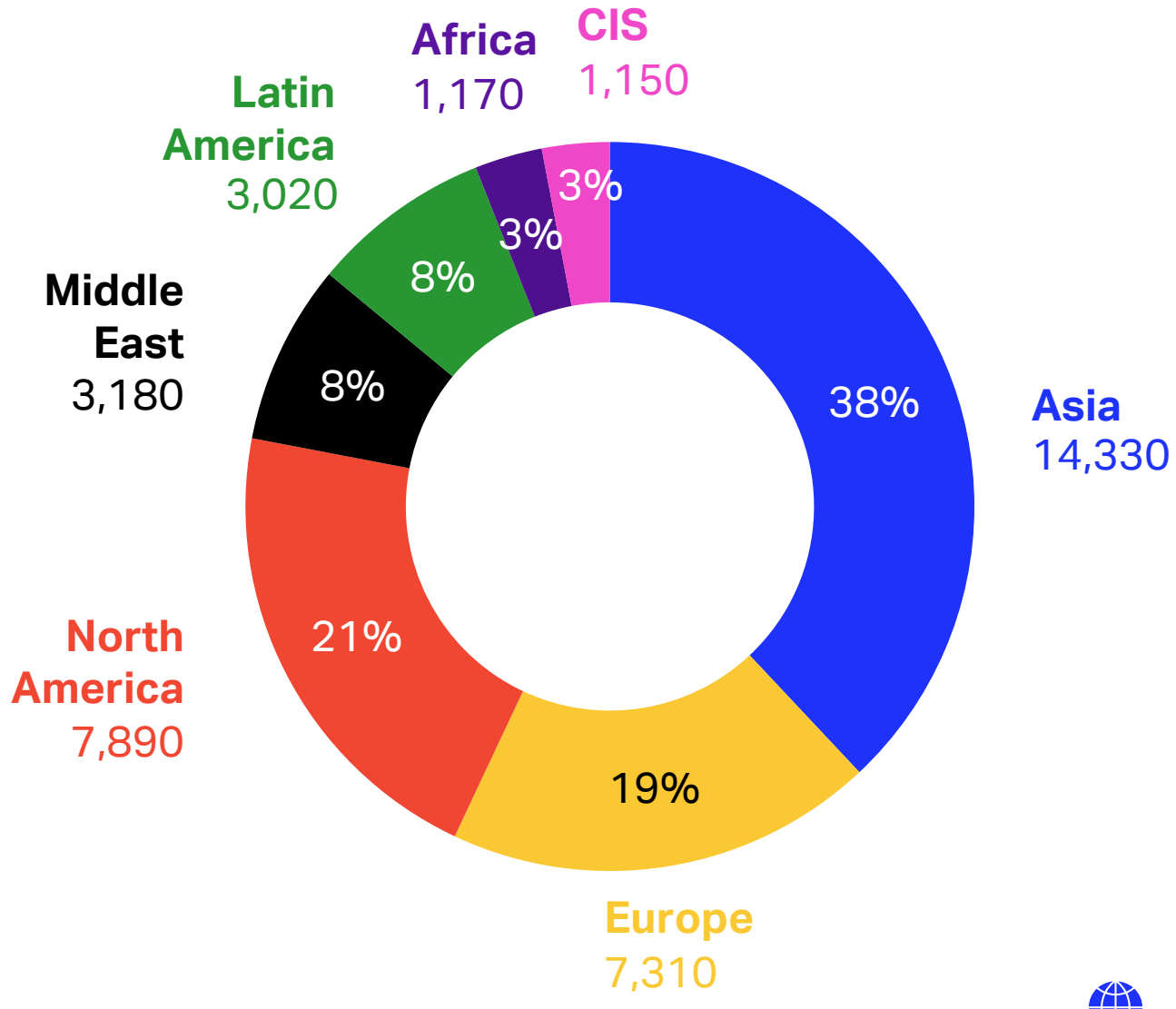


KEY CONTEXT – TRAFFIC FORECAST POST COVID



Key Context

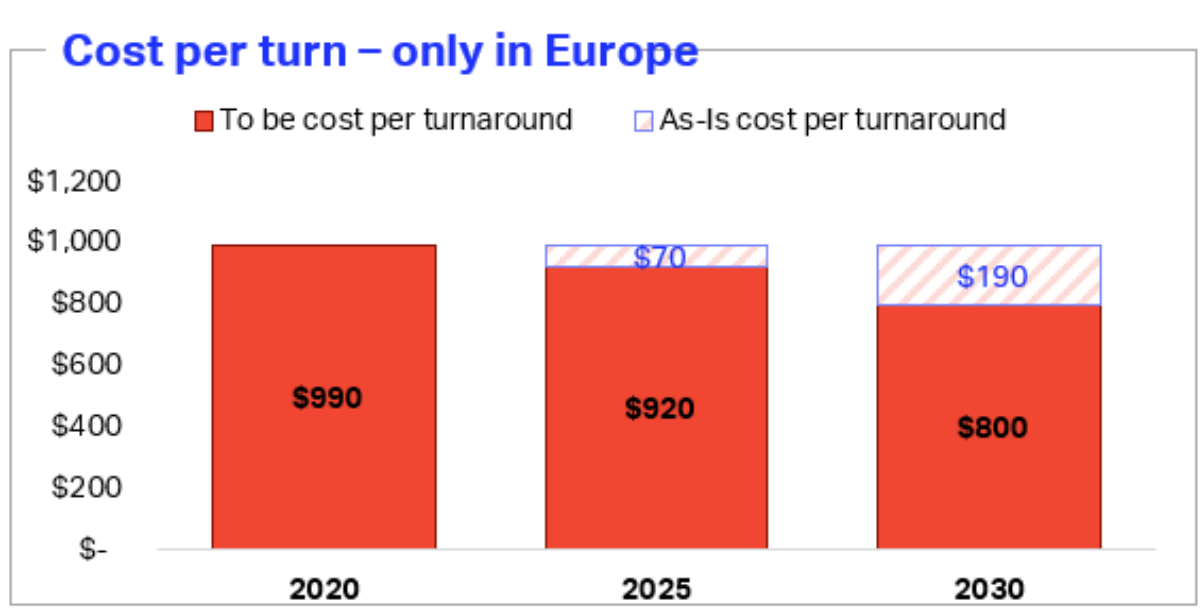
38,050
new airplanes
2015 to 2034

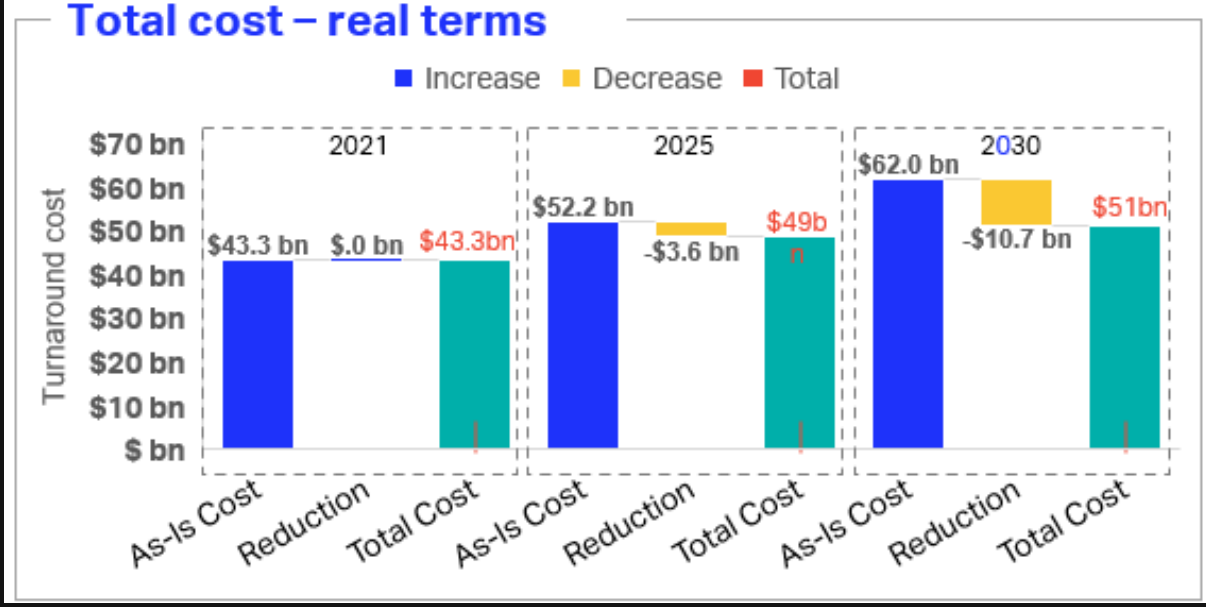


Ground Ops. Cost Breakdown

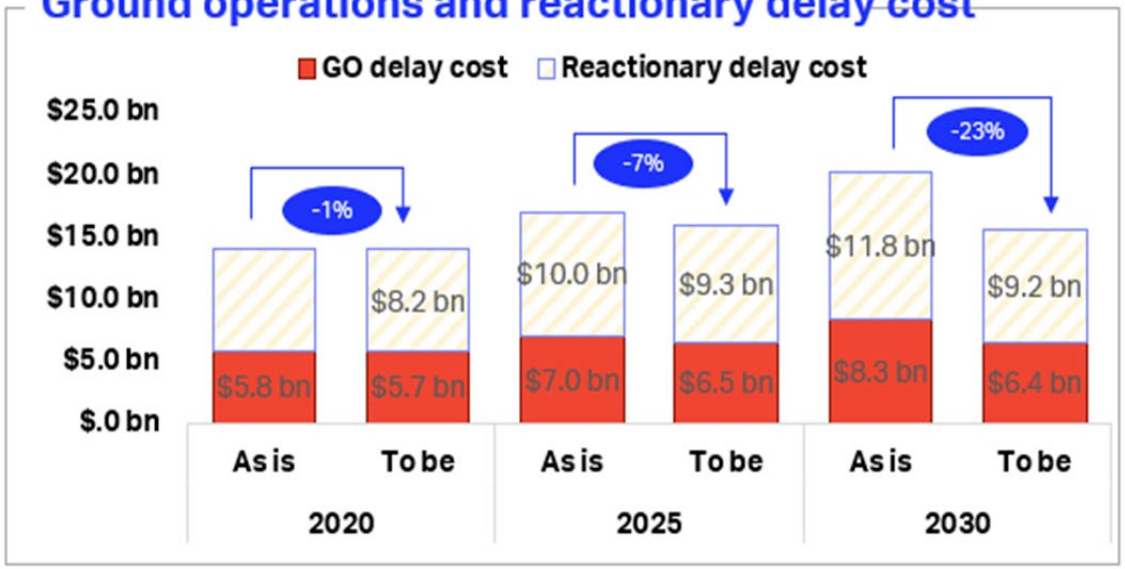
- Aircraft Turnaround
- Operational Delays
- Aircraft Damage
- Health & Safety
- Environment

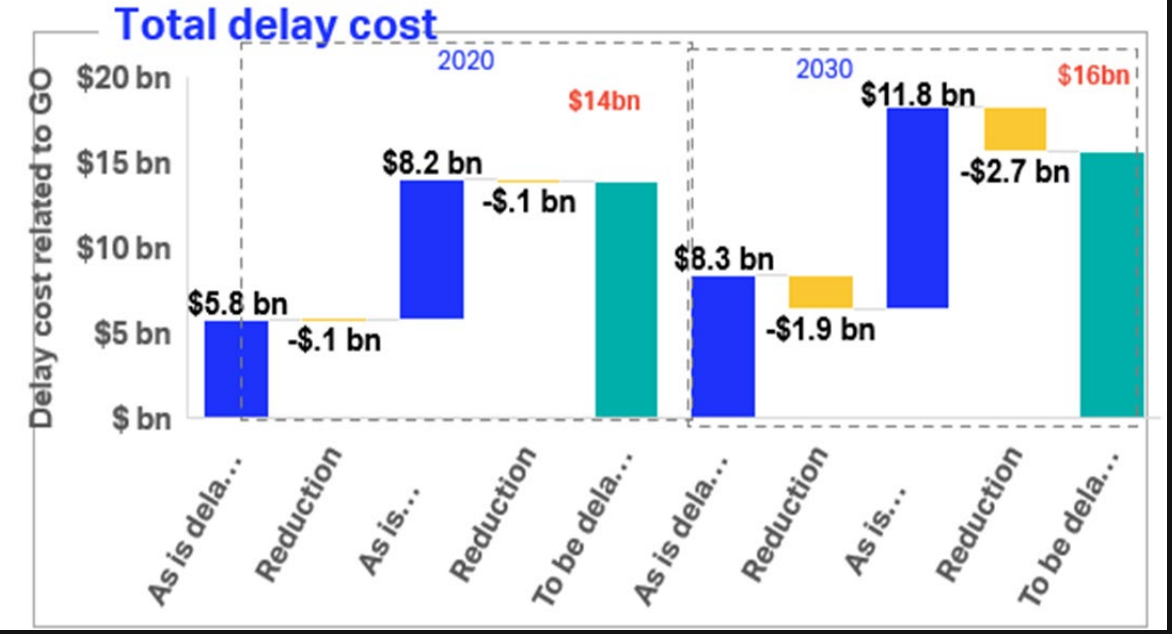
Aircraft Turnaround Cost





$10.7 Bn Opportunity

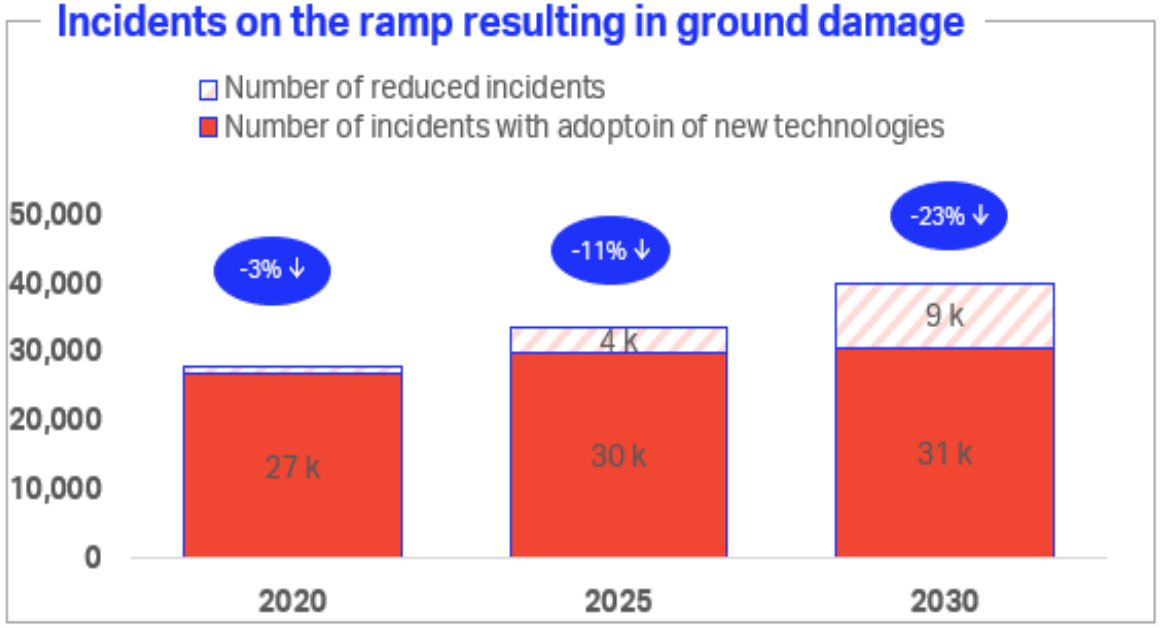


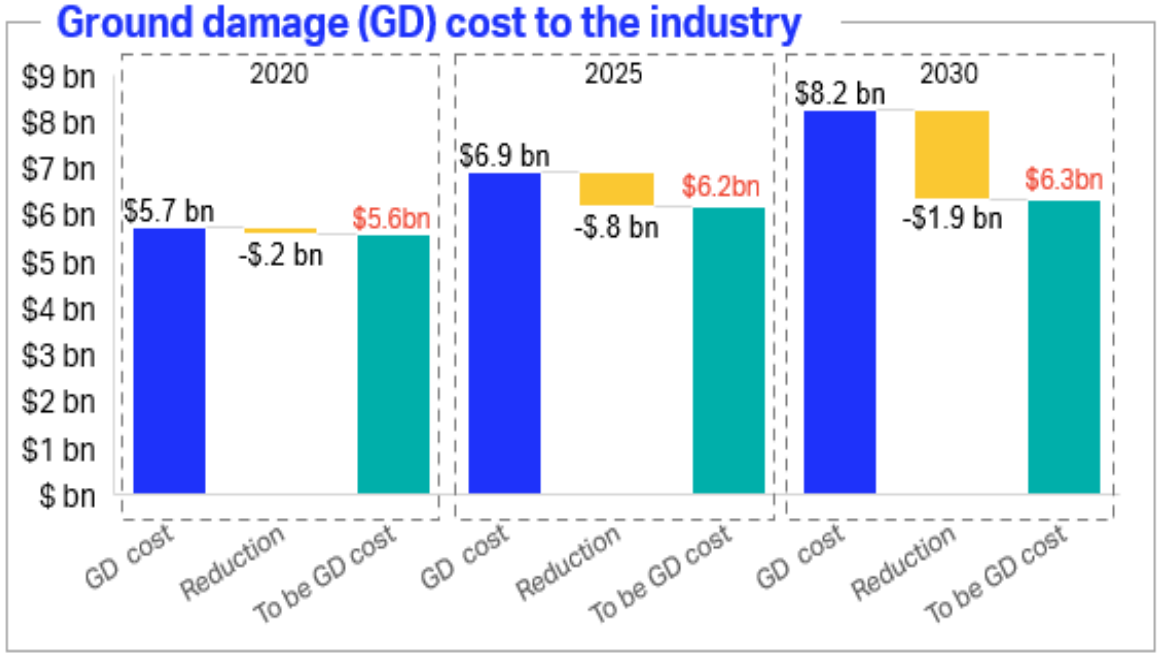


Operational Delays

$2.7 Bn Opportunity

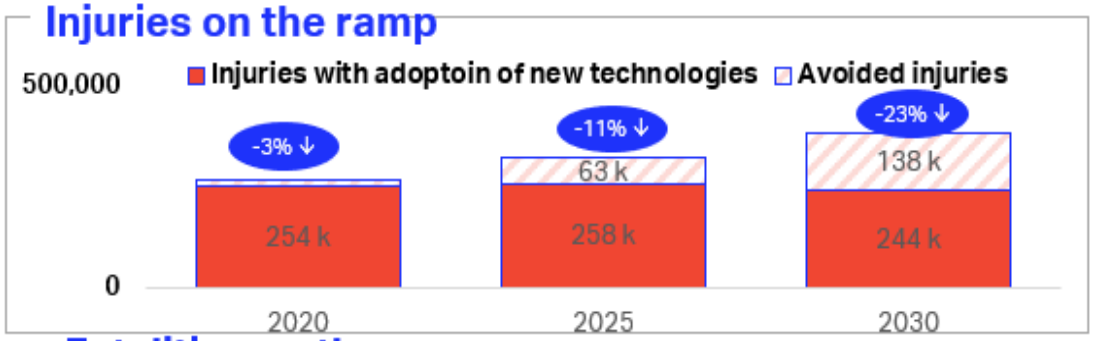
Aircraft Ground Damage

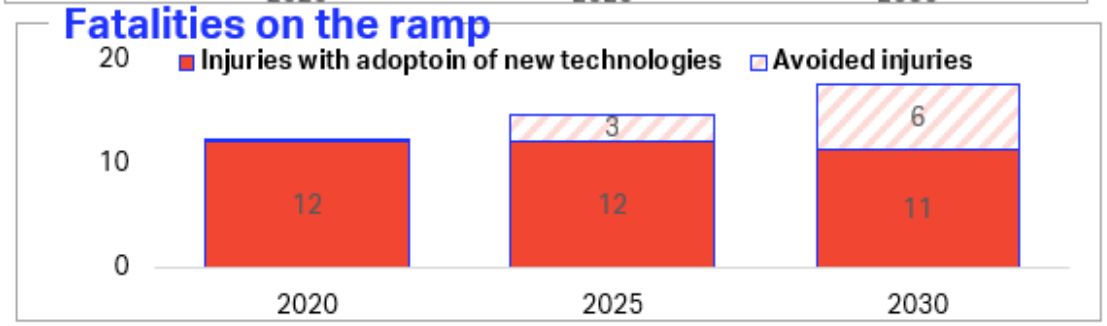


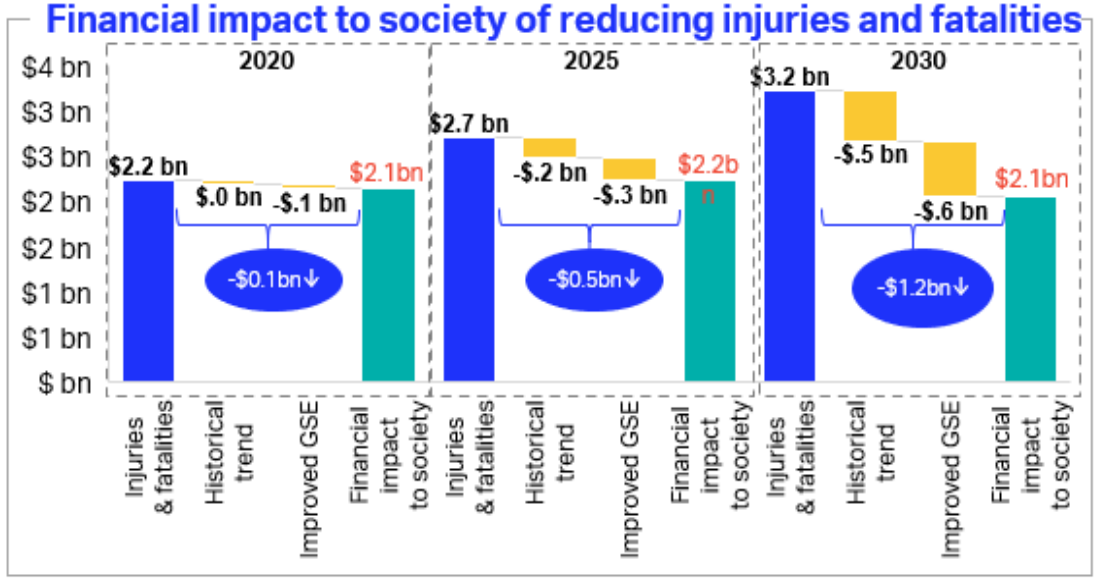


$1.9 Bn Opportunity

Occupational Health & Safety

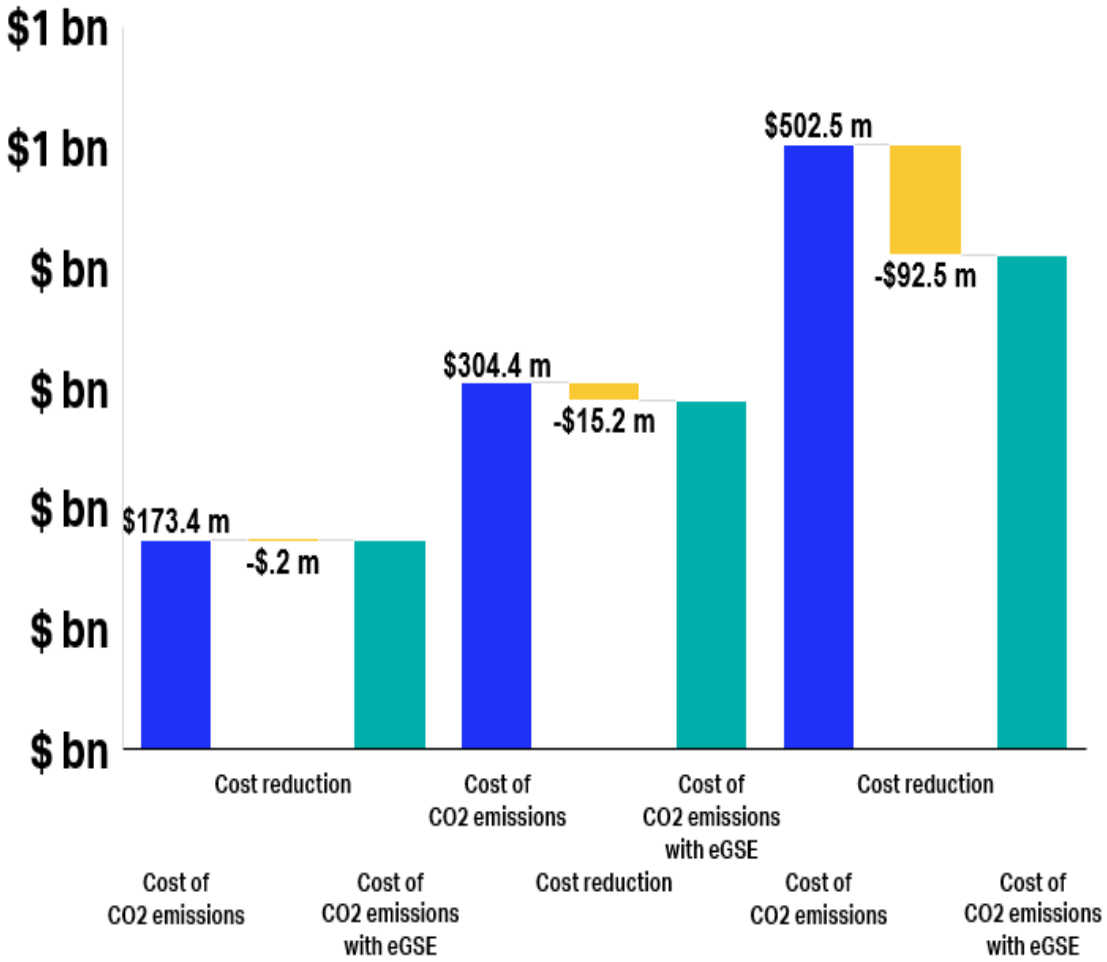






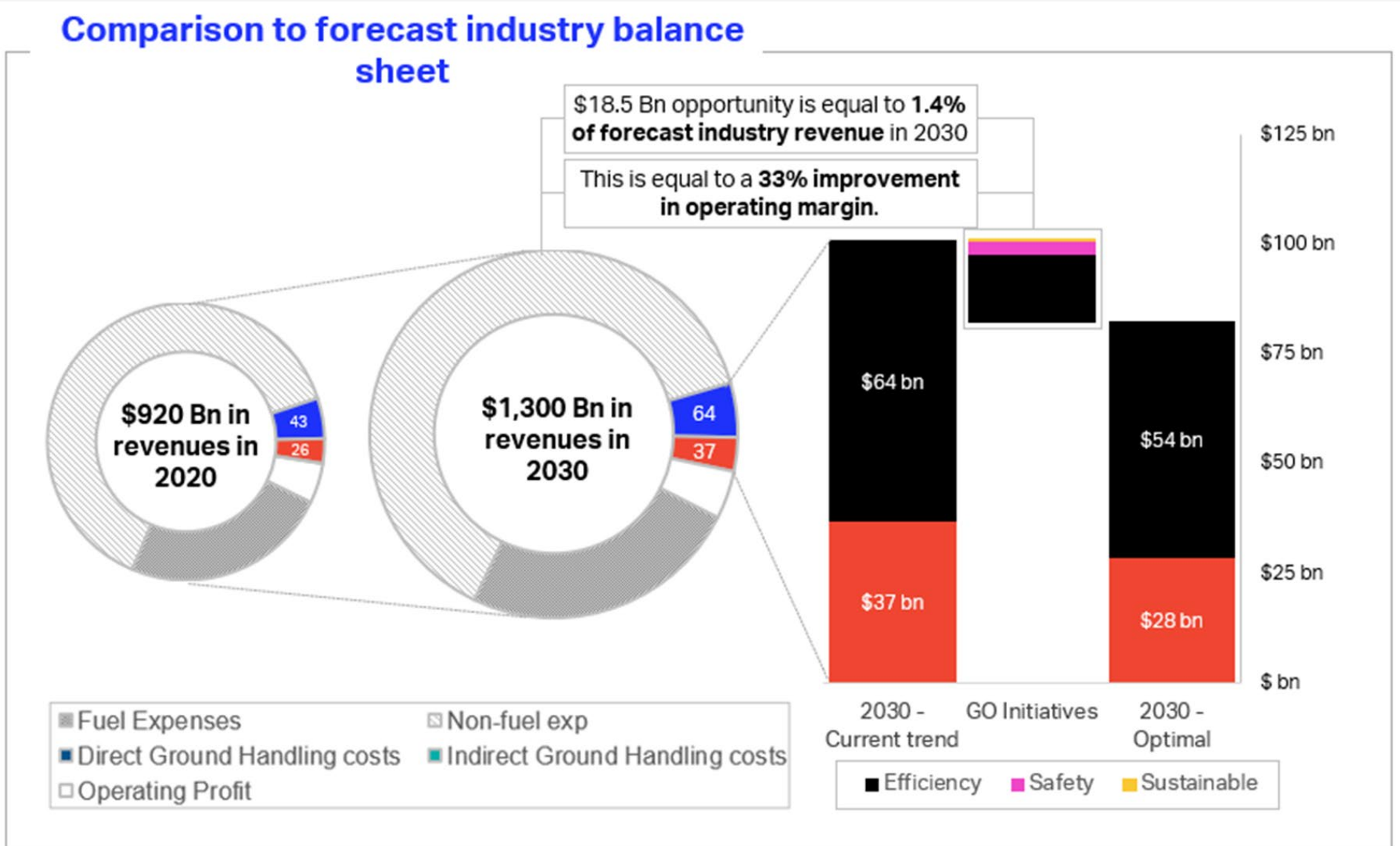
$0.6 Bn Opportunity

Environment



$92.5 M Opportunity

Airline Forecast



What are the threats to Innovation?

Innovation Threats

The Biggest threat to Innovation

Is internal politics and an organizational culture

which doesn’t accept failures and/or

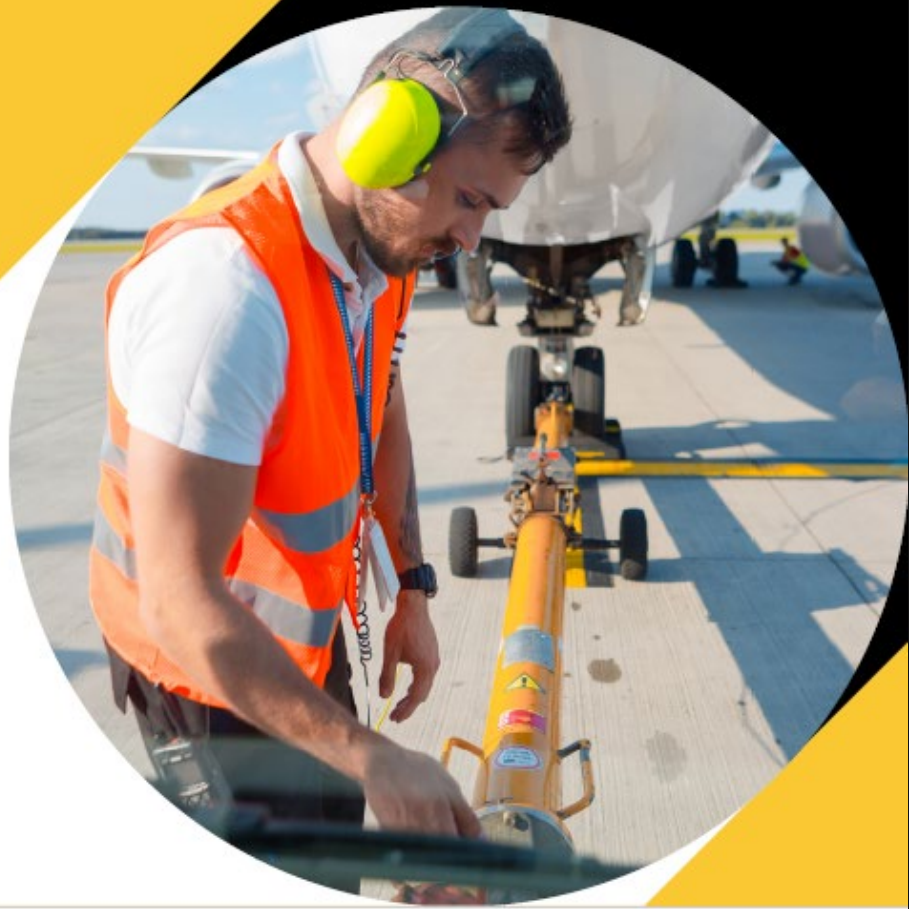
doesn’t accept ideas from outside

and/or cannot change

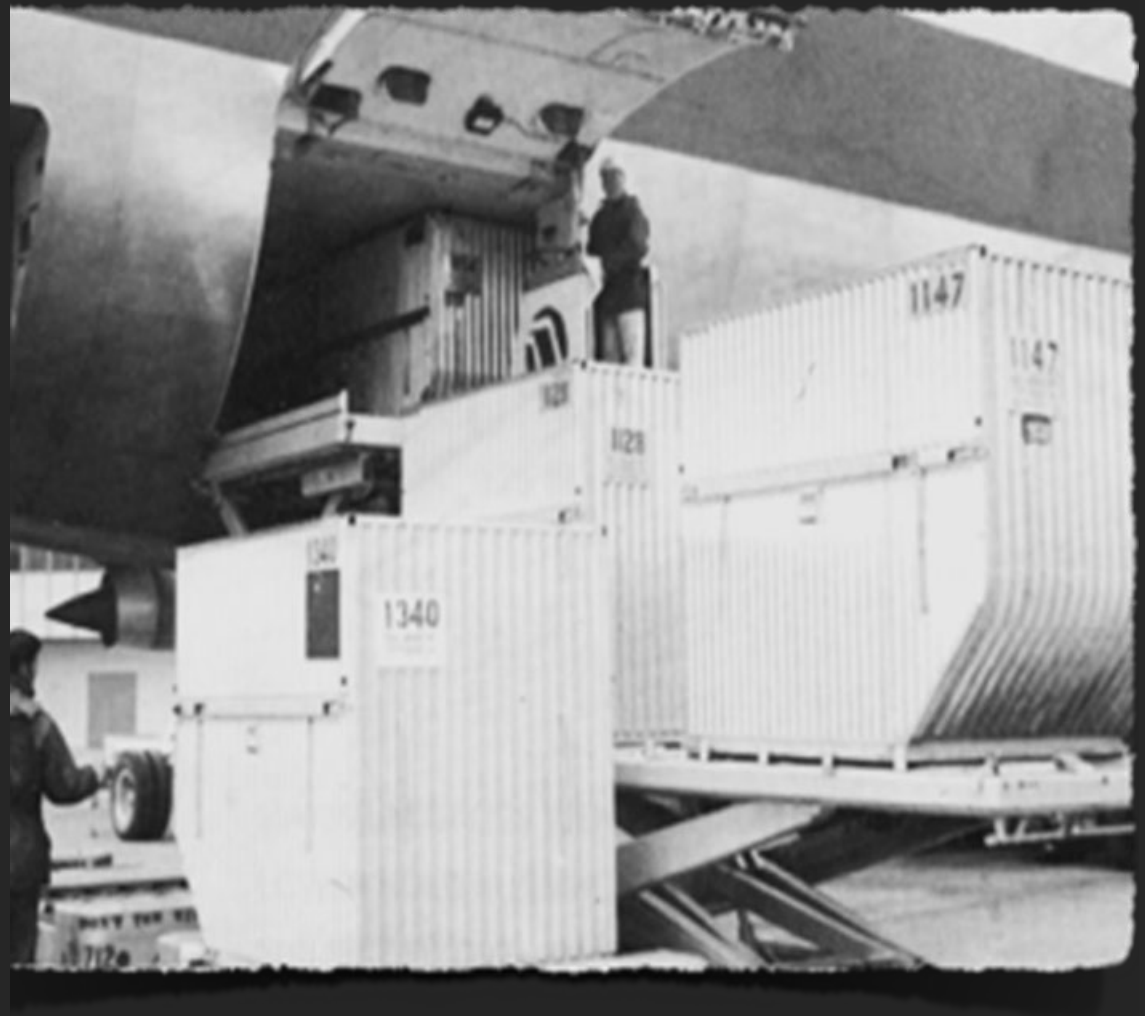
Damage prevention

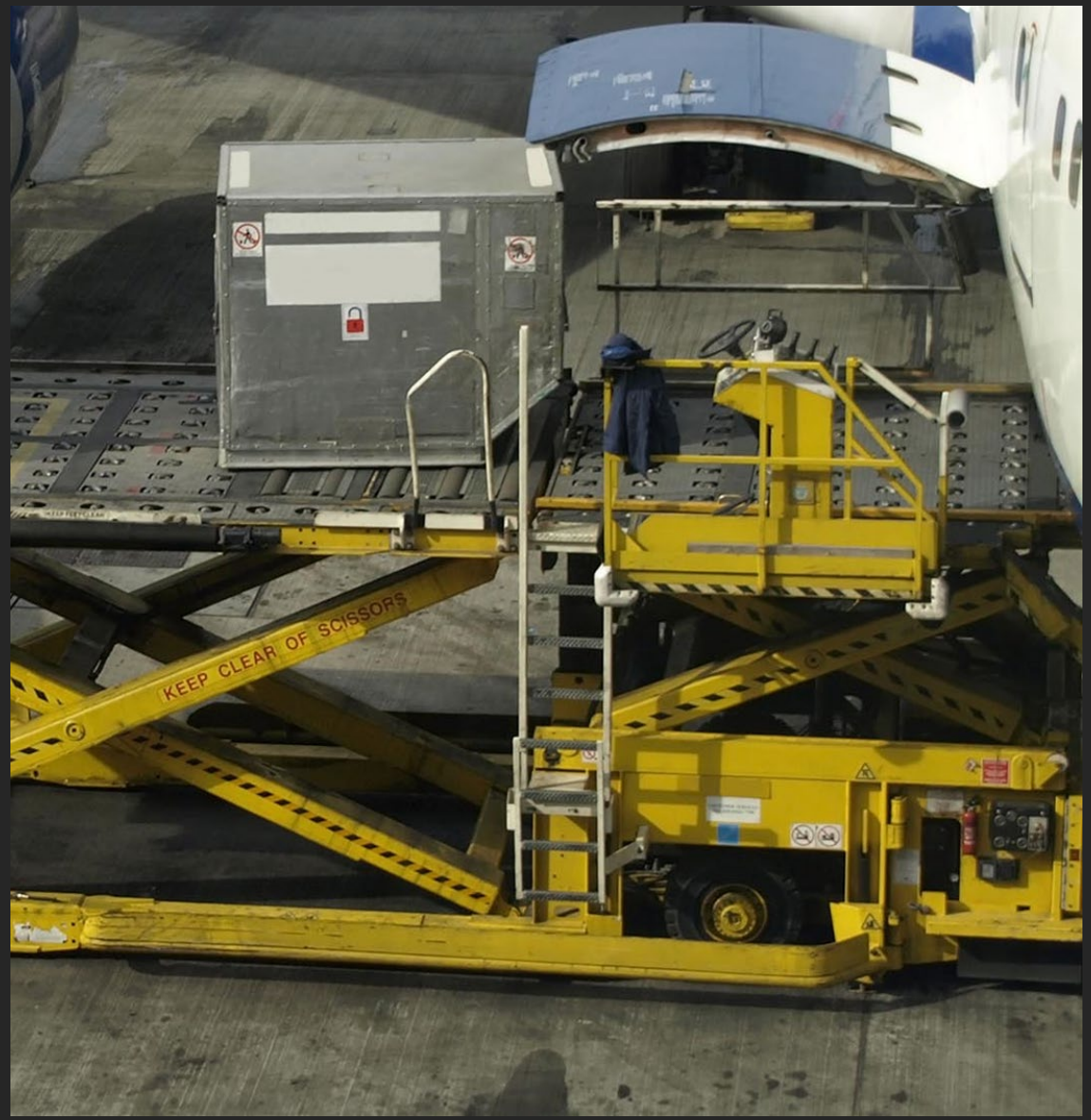
IATA Ground Damage Report

the case for enhanced ground support equipment




VOLVO PV 444
A12345

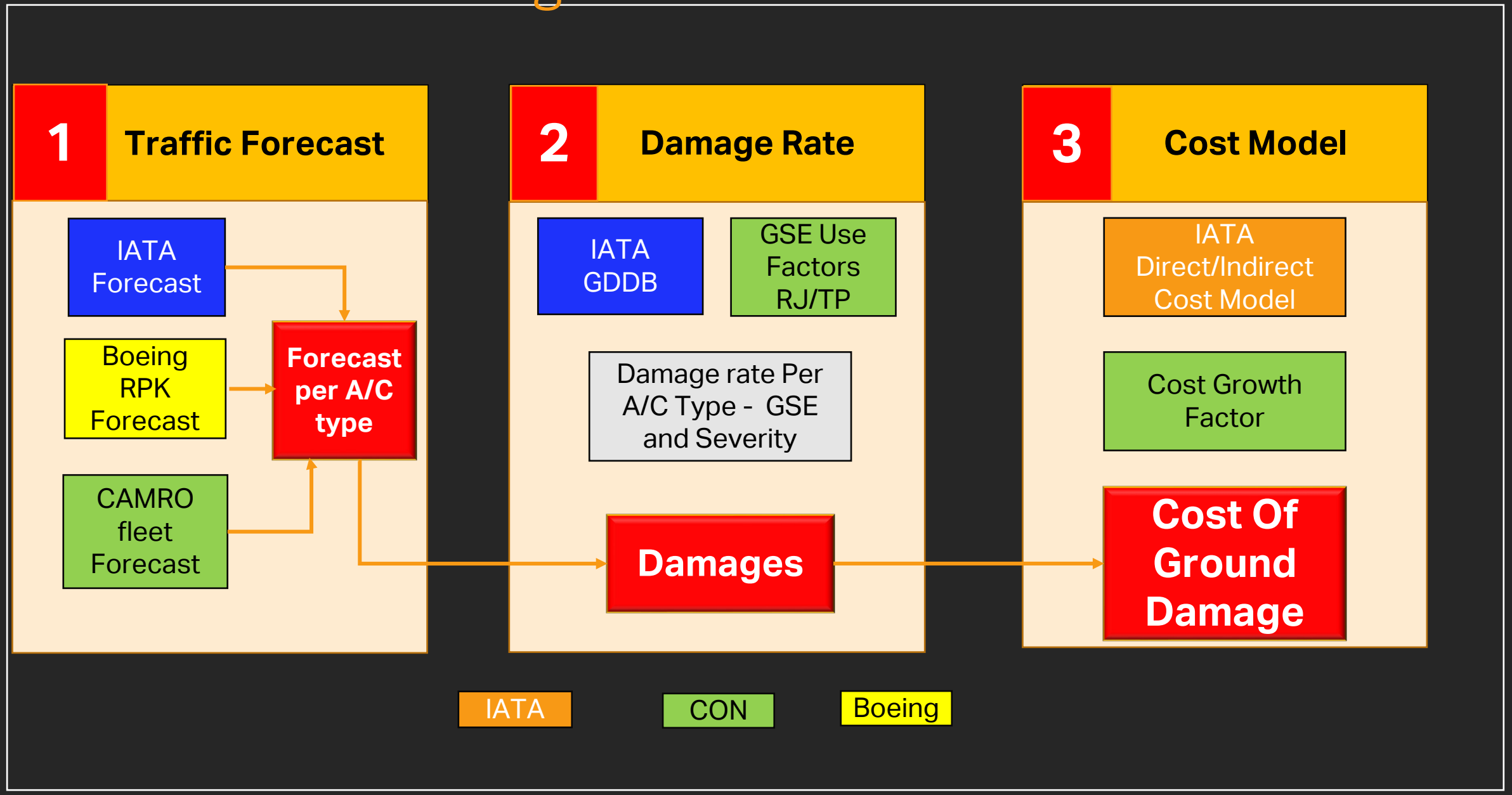

1147
1340


KEEP CLEAR OF SCISSORS

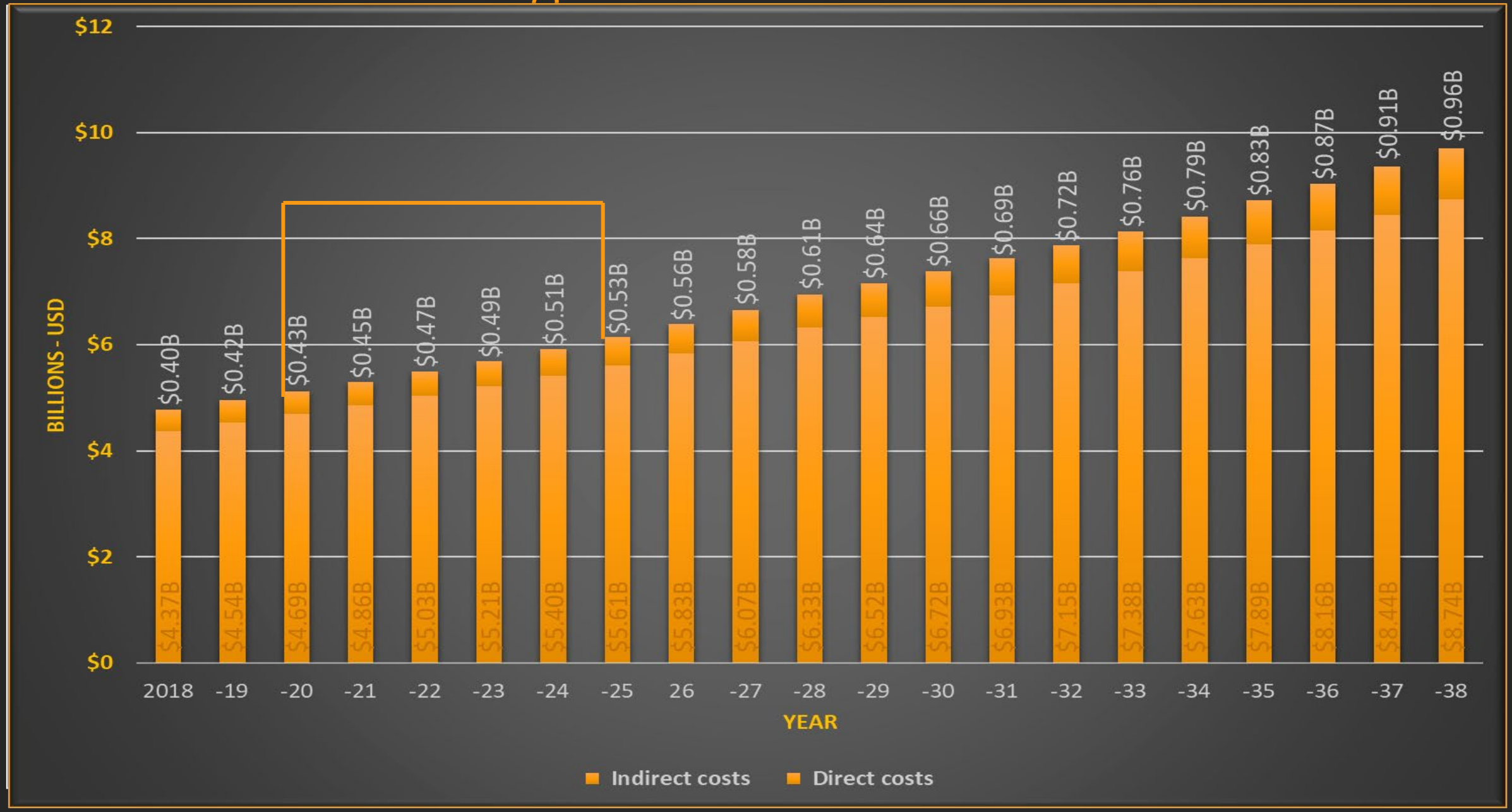

MONTPELLIER FREJORGUES


transavia

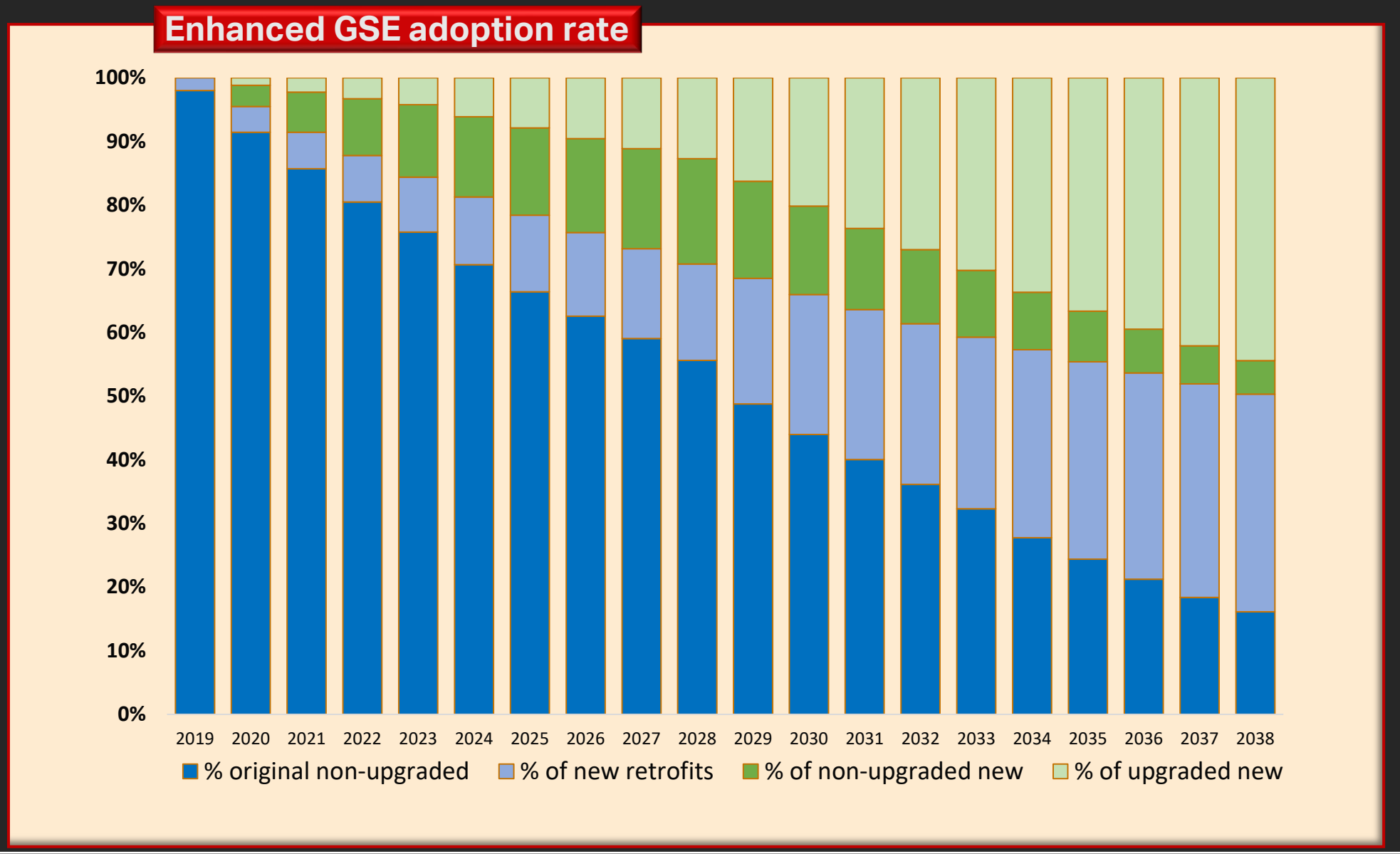
Damage Forecast Model

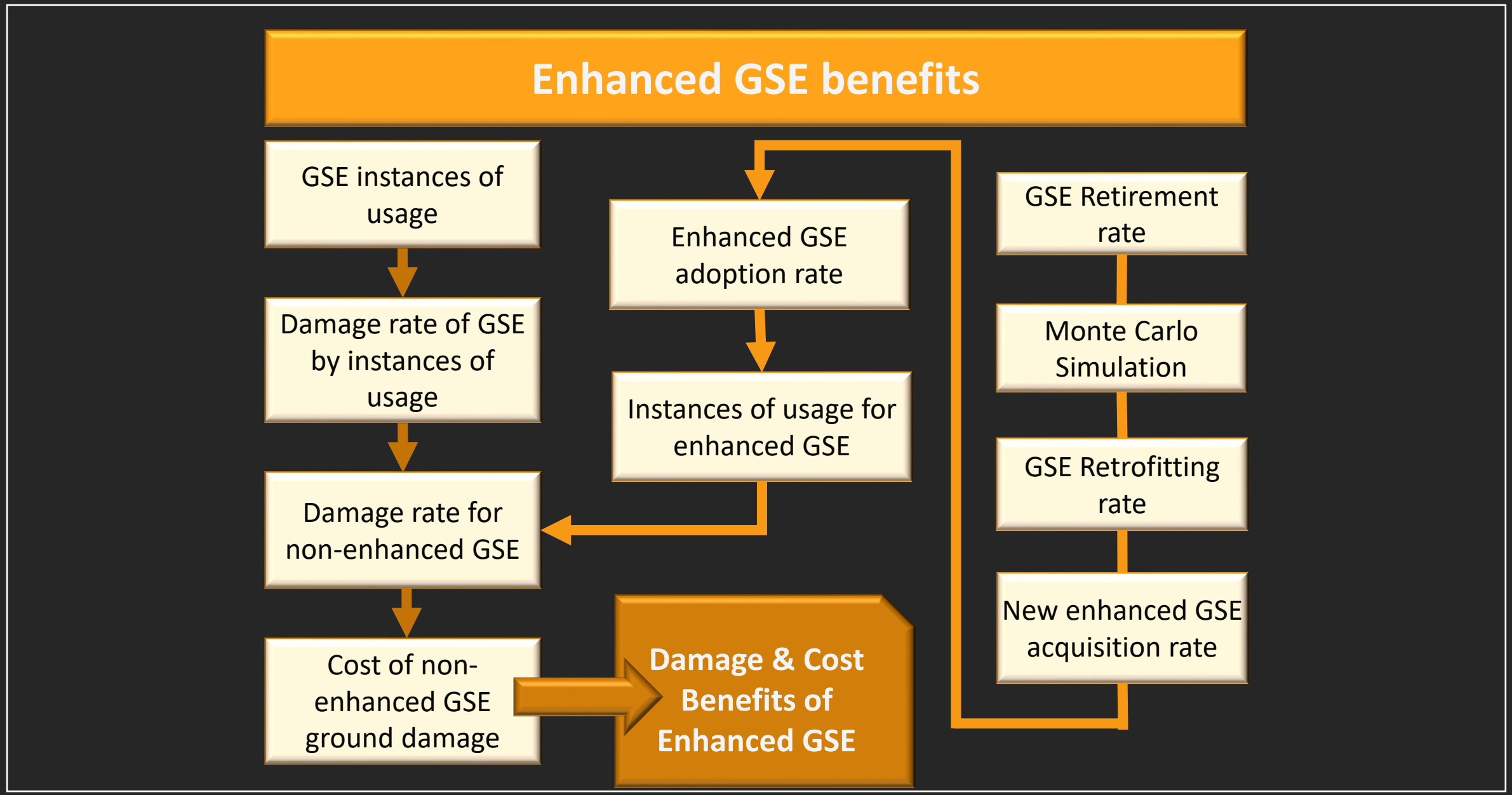


Damage Forecast Model



Enahnced GSE Adoption Rate

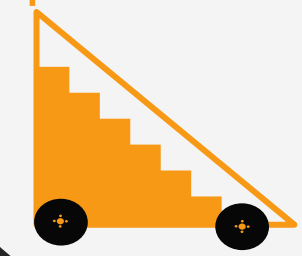



Enhanced GSE benefits
GSE instances of usage
Damage rate of GSE by instances of usage
Damage rate for non-enhanced GSE
Cost of non-enhanced GSE ground damage
Enhanced GSE adoption rate
Instances of usage for enhanced GSE
Damage & Cost Benefits of Enhanced GSE
GSE Retirement rate
Monte Carlo Simulation
GSE Retrofitting rate
New enhanced GSE acquisition rate

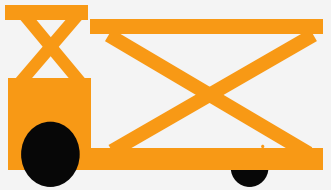
Aircraft Type	Number of flights	Total ground damage cost per flight
Widebody	3.9 M	$580
Narrowbody	30.7 M	$74
Regional jet / turboprop	10.0 M	$14

4 GSE account for over 40% of the total ground damage costs

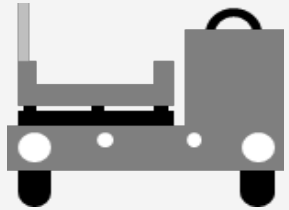
$ 620 m



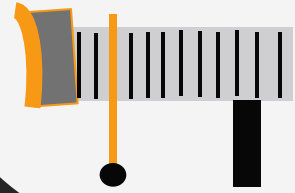
$ 560 m



$ 610 m



$ 280 m



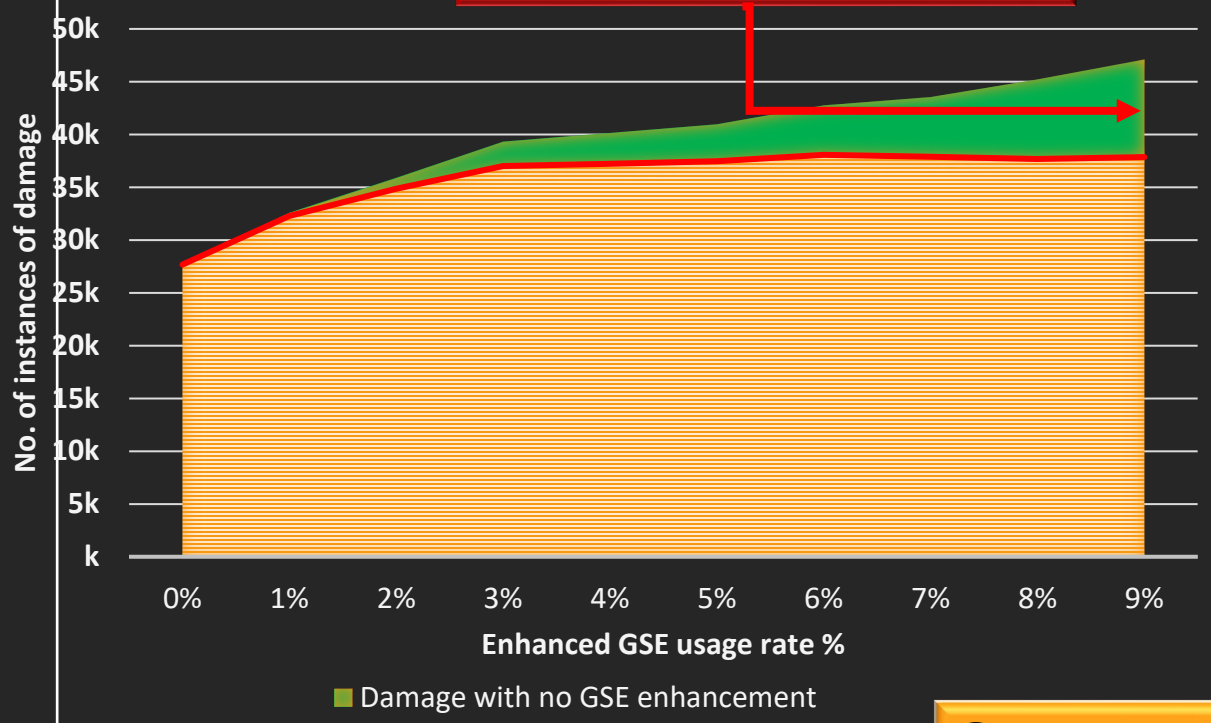
Cost of ground damage per GSE instance of use

GSE	Widebody	Narrowbody	Regional jet / turboprop
Belt loader	$58.6	$12.3	0.0
Cargo loader	$75.1	$18.9	0.0
Passenger stairs	$133.0	$24.0	$22.0
Boarding bridge	$38.0	$8.5	$7.8

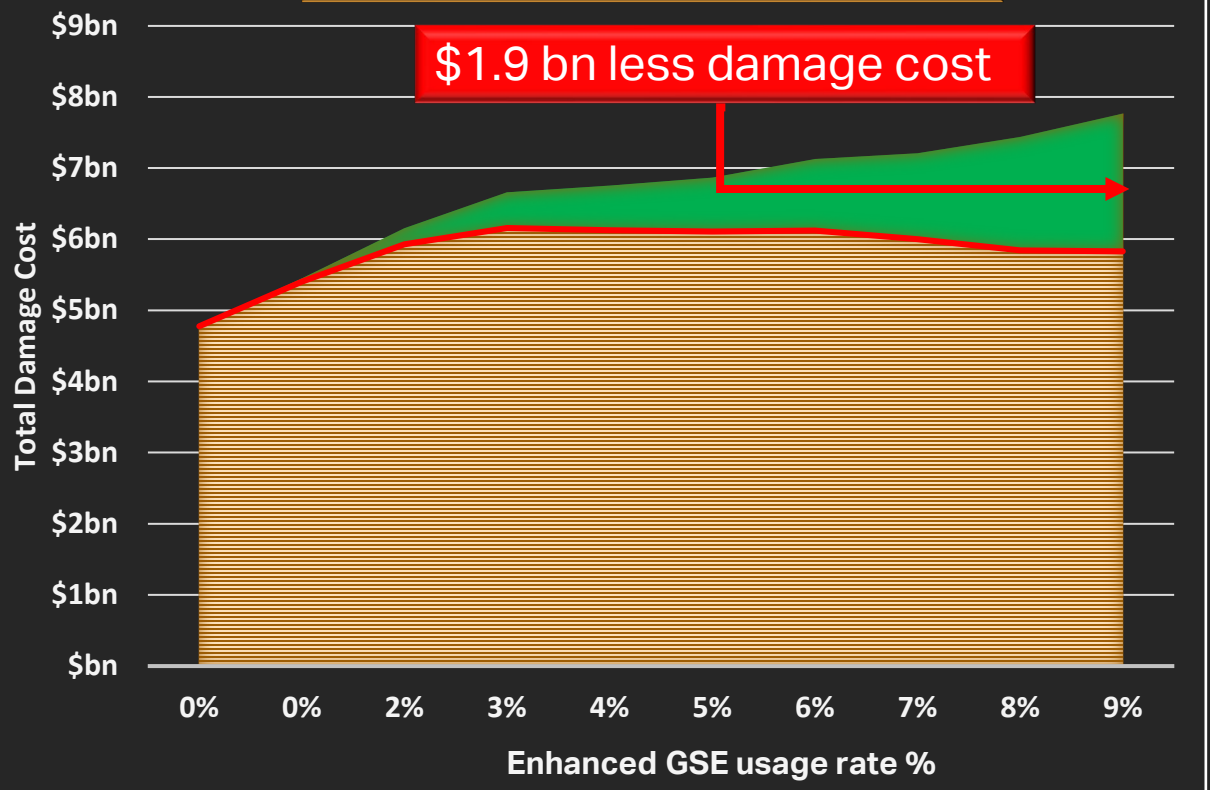
For a widebody aircraft: $58.60 needs to be set aside each time a belt loader is used - to cover the total cost of ground damage from belt loaders

Adoption Enhanced GSE

Damage Reduction due to adoption of enhanced GSE



Total Damage Cost Reduction due to adoption of enhanced GSE



Opportunities

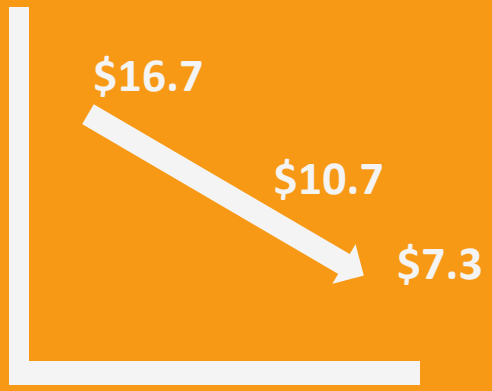
If 9% of the ground operations are performed by enhanced GSE, then a reduction of over **13%** of instances of damage **and 20% of total ground damage cost** can be expected

Cost reduction – Enhanced GSE

	Cost reduction per instance of use	
	41% utilization level	76% utilization level
Belt loader	$6.0	$9.4
Cargo loader	$8.7	$15.7
Passenger stairs	$6.0	$11.7
Boarding bridge	$2.5	$4.7

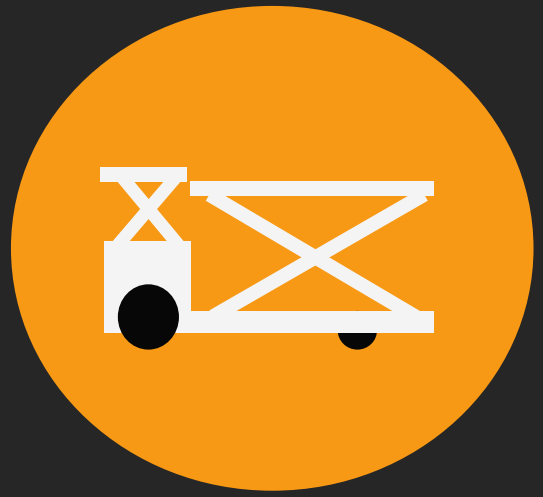
Cost reduction – Enhanced GSE

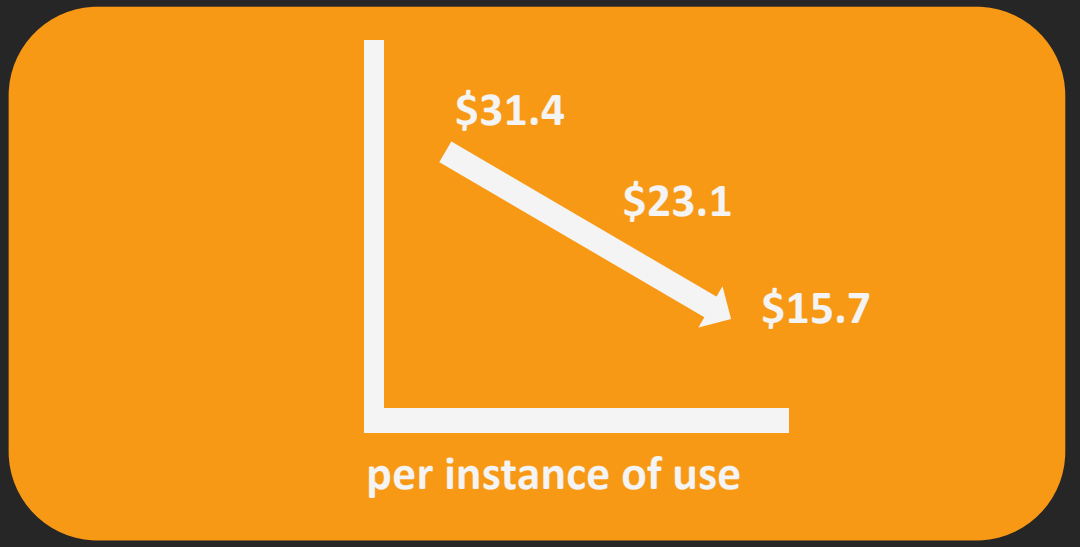
per instance of use

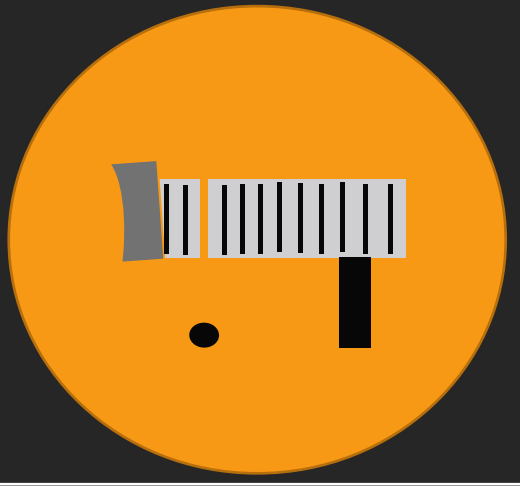


per instance of use

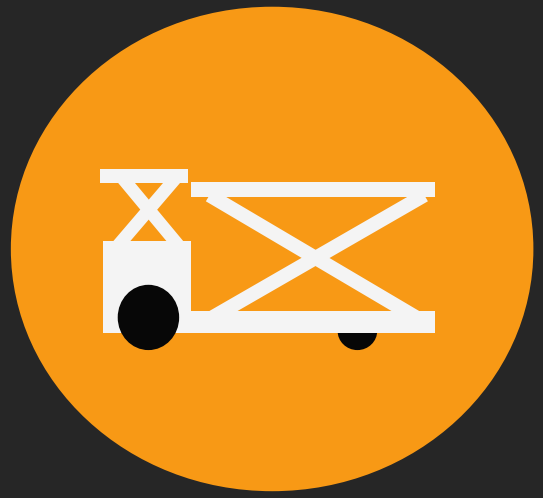
Cost reduction – Enhanced GSE







Cost reduction – Enhanced GSE



Cost of ground damage drops by $ 36.80

per instance of use

Enhanced GSE Recognition Program

WHAT

An award recognition program to give visibility to ground handling organizations that have invested in enhanced GSE

HOW

Station GSE fleet at will be declared by the ground handling organization; IATA will perform a remote validation

WHEN

Soft launch in 2024

What

SCOPE

Initial phase, the GSE in scope are belt loader, ULD loader, pax stair.

Mature phase, all other elevating and lifting GSE that docks at the aircraft doors (PRM, Catering, Cleaning, PBB).

RECOGNITION CRITERIA

The award criteria are based on the concept of ground damage risk reduction.

For each GSE type an overall risk score has been determined on a points basis

The overall risk reduction score shall meet the defined % threshold.

How

STATION FLEET DECLARATION

GHSP request participation; station fleet is declared and submitted to IATA using the tools provided

IATA VALIDATION

IATA Auditor will validate remotely the fleet submission

When

Jan 2024

May 2024

Jan 2025

Initial Phase – Pilots
GSE specifications submitted by GHSP

Awarding GHSP stations that have successfully met criteria

Initial Phase – Hard Launch
Extension to all ISAGO stations with ramp operations in scope

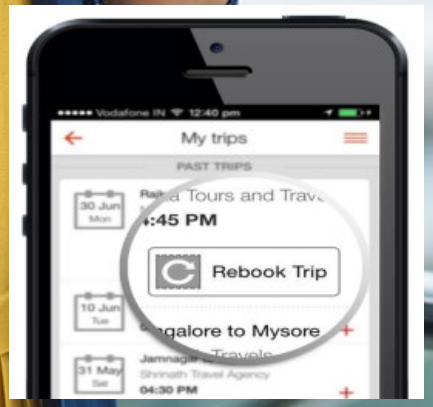
Criteria

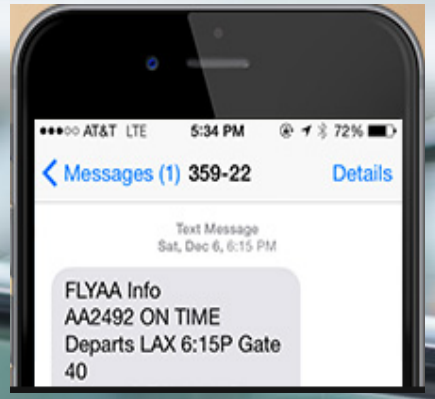
Ramp Digitalization & Automation

IATA Ground Operations Digital Ramp

Passenger Experience

Booking → Check-In → Re-booking → Navigation → Boarding

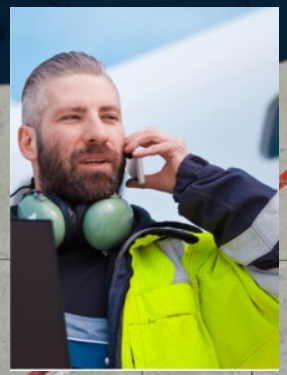




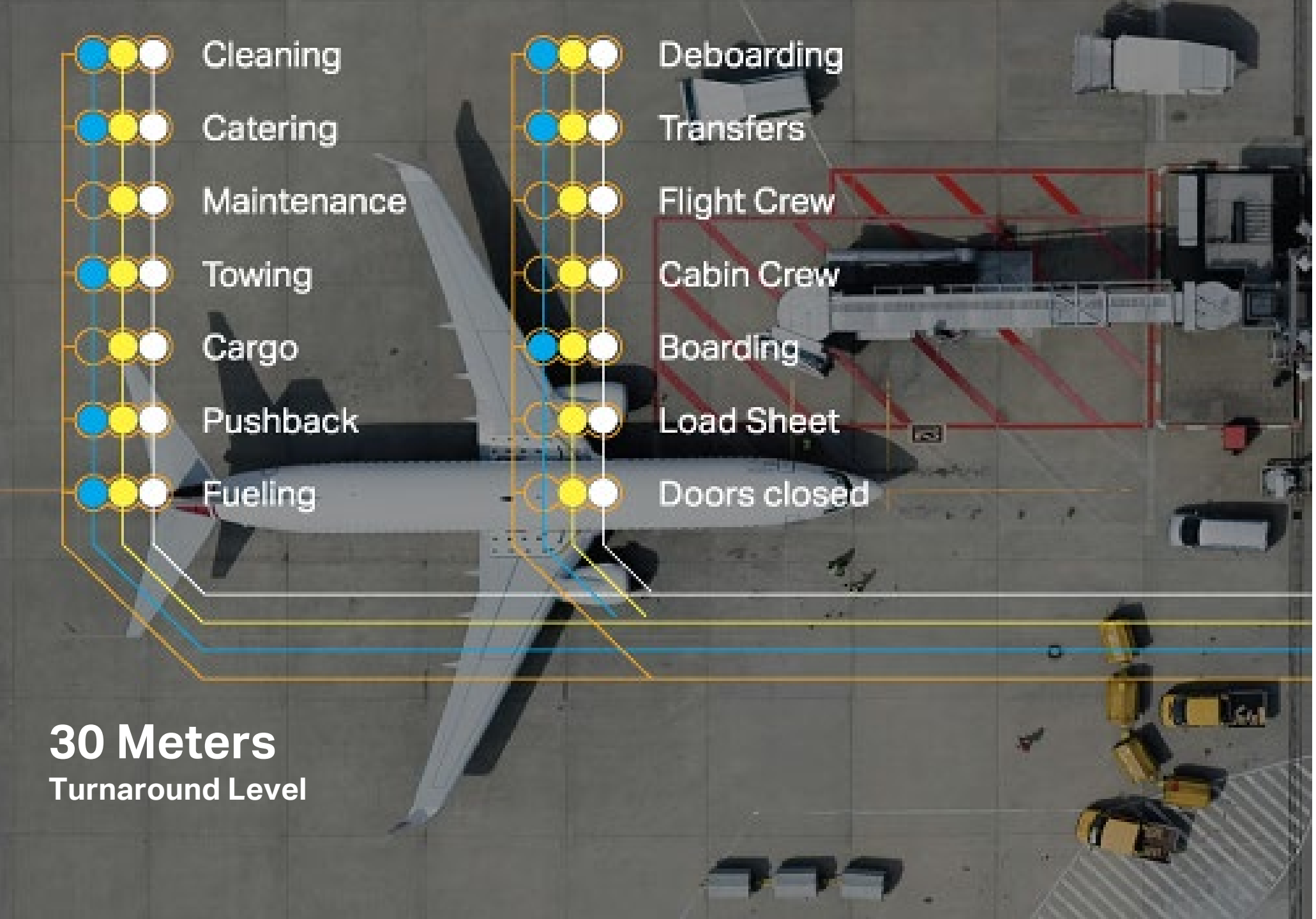
Ramp Experience

Documents

Comunication

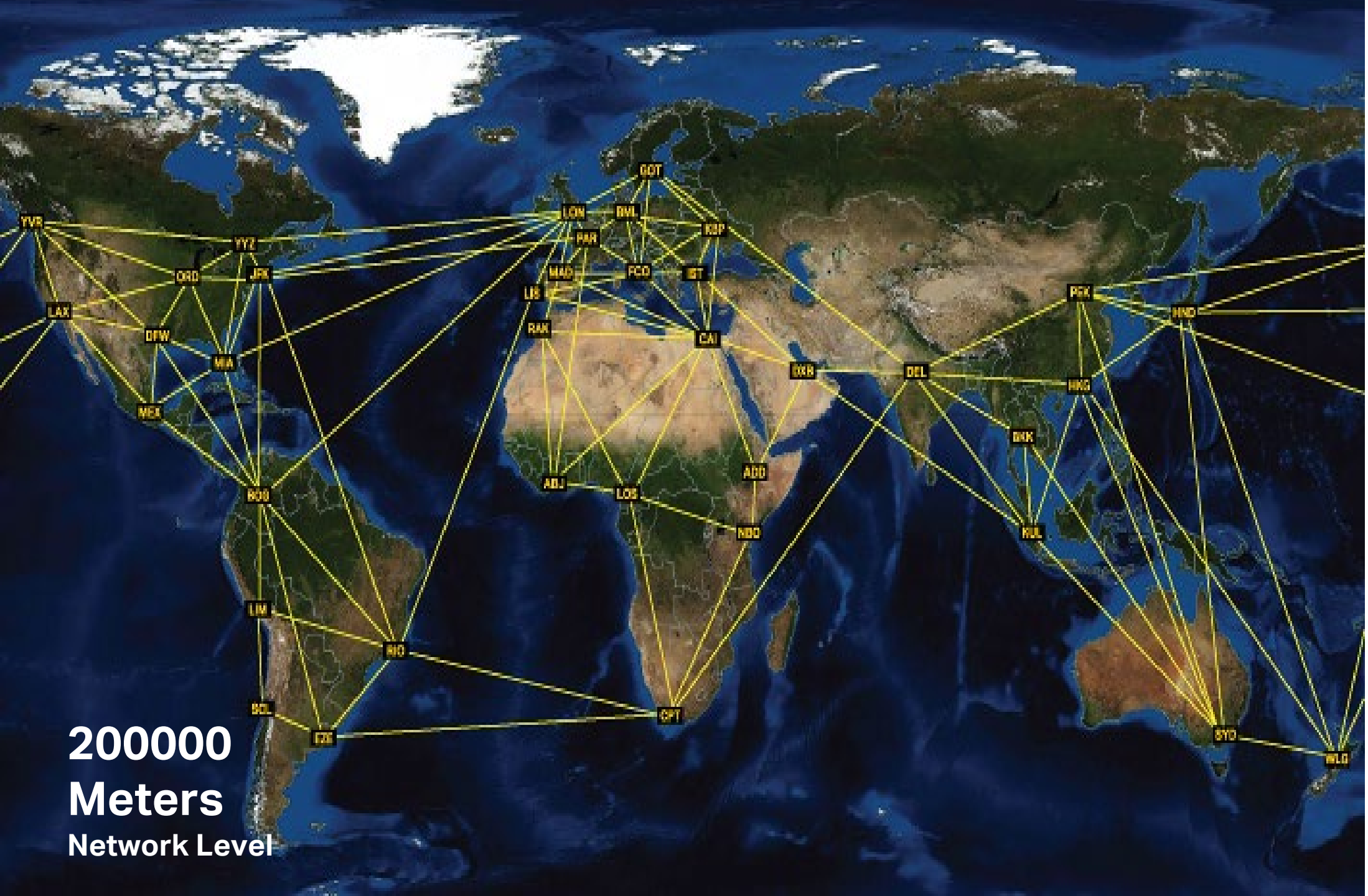



10 Meters
Task Level
Fuel pump connected to the aircraft


Cleaning
Catering
Maintenance
Towing
Cargo
Pushback
Fueling
Deboarding
Transfers
Flight Crew
Cabin Crew
Boarding
Load Sheet
Doors closed
30 Meters
Turnaround Level


100 Meters
Pier Level

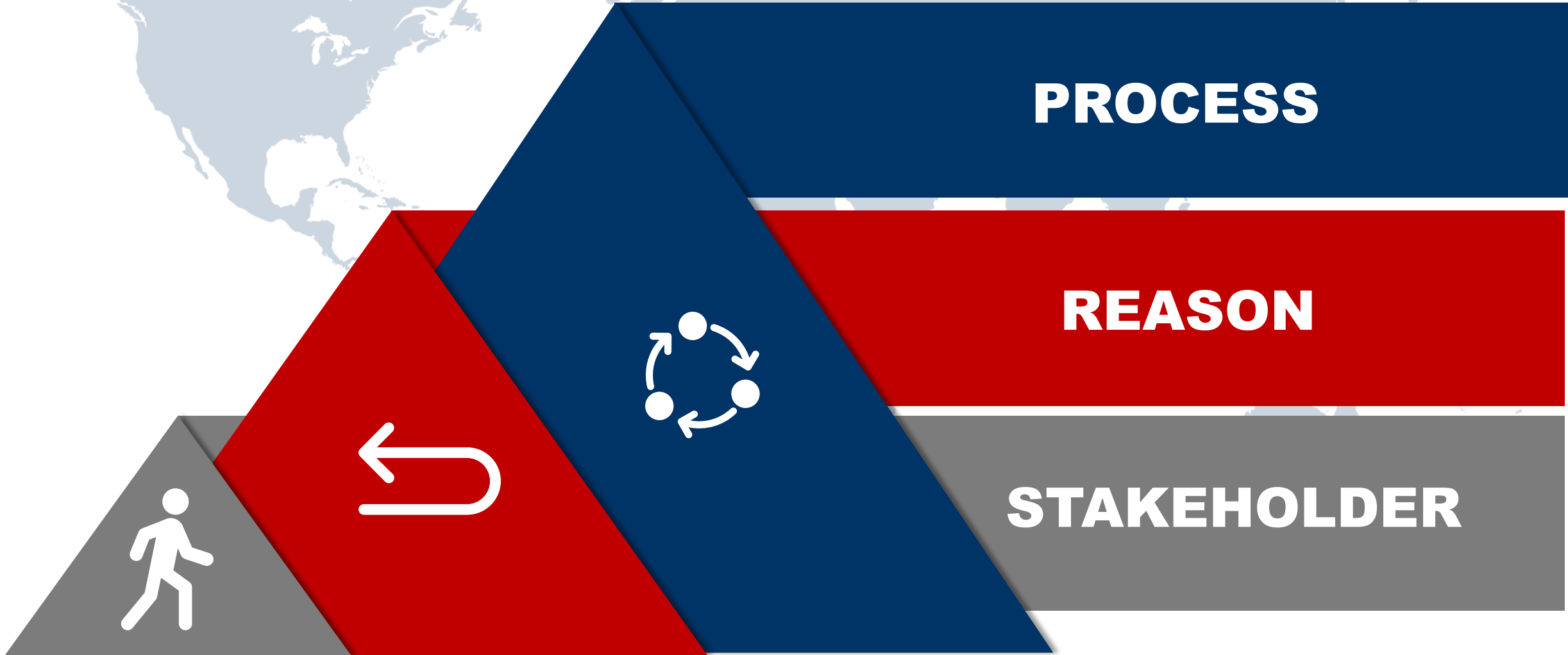

300
Meters
Airport Level



200000 Meters

Network Level

IATA New Delay Codes

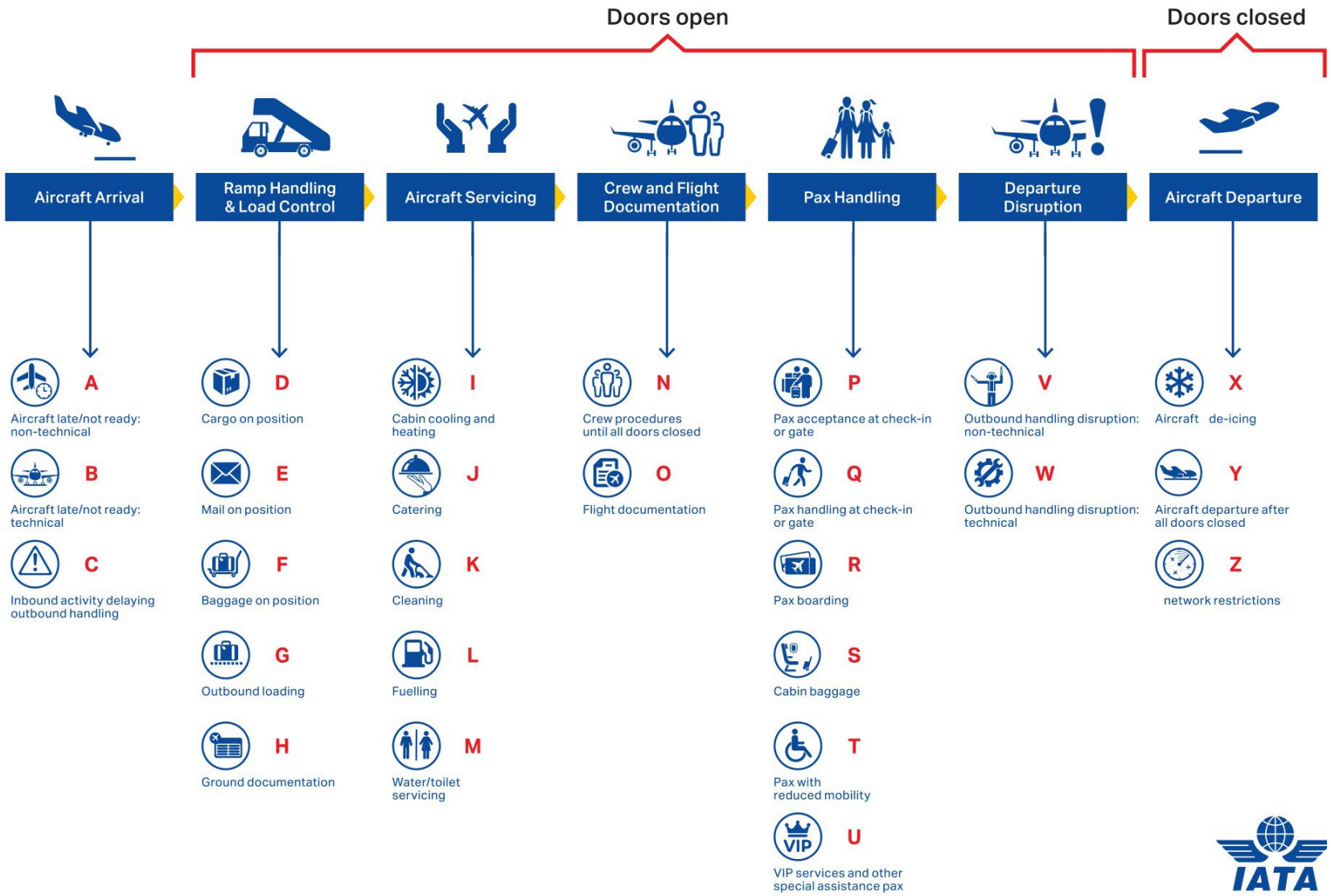


A new way of looking at delays - not a translation

Groups to match turnround.

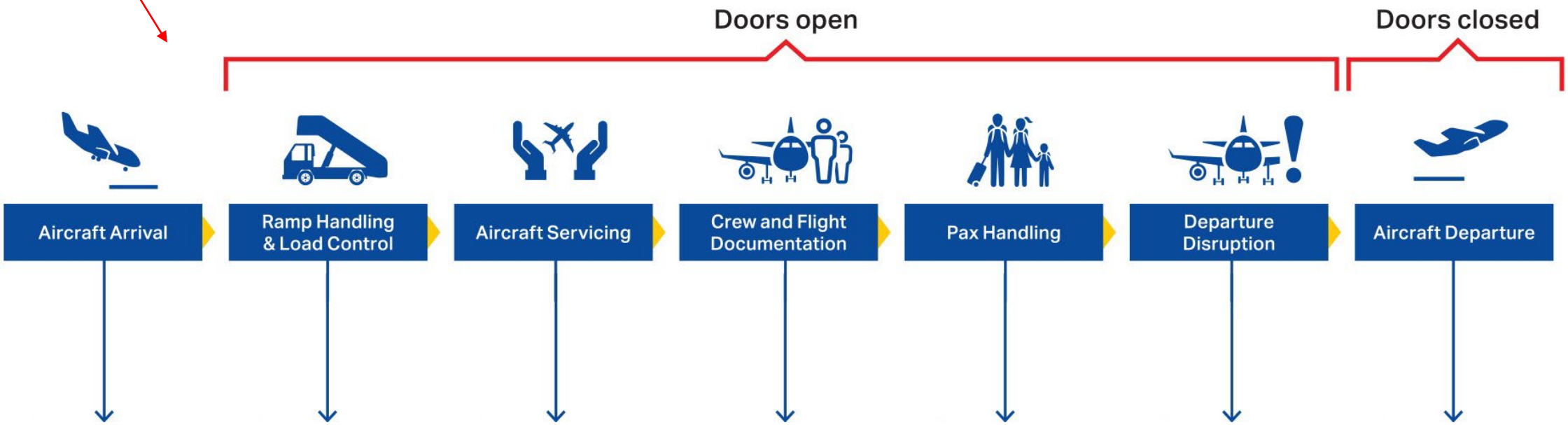
Processes are the first layer.

AHM 732 Delay Code Structure



Groups to match turnround.

AHM 732 Delay Code Structure



Processes are the first layer.

Aircraft Arrival

- **A** — Aircraft late/not ready: non-technical
- **B** — Aircraft late/not ready: technical
- **C** — Inbound activity delaying outbound handling

Ramp Handling & Load Control

- **D** — Cargo on position
- **E** — Mail on position
- **F** — Baggage on position
- **G** — Outbound loading
- **H** — Ground documentation

Aircraft Servicing

- **I** — Cabin cooling and heating
- **J** — Catering
- **K** — Cleaning
- **L** — Fuelling
- **M** — Water/toilet servicing

Crew and Flight Documentation

- **N** — Crew procedures until all doors closed
- **O** — Flight documentation

Pax Handling

- **P** — Pax acceptance at check-in or gate
- **Q** — Pax handling at check-in or gate
- **R** — Pax boarding
- **S** — Cabin baggage
- **T** — Pax with reduced mobility

Departure Disruption

- **V** — Outbound handling disruption: non-technical
- **W** — Outbound handling disruption: technical

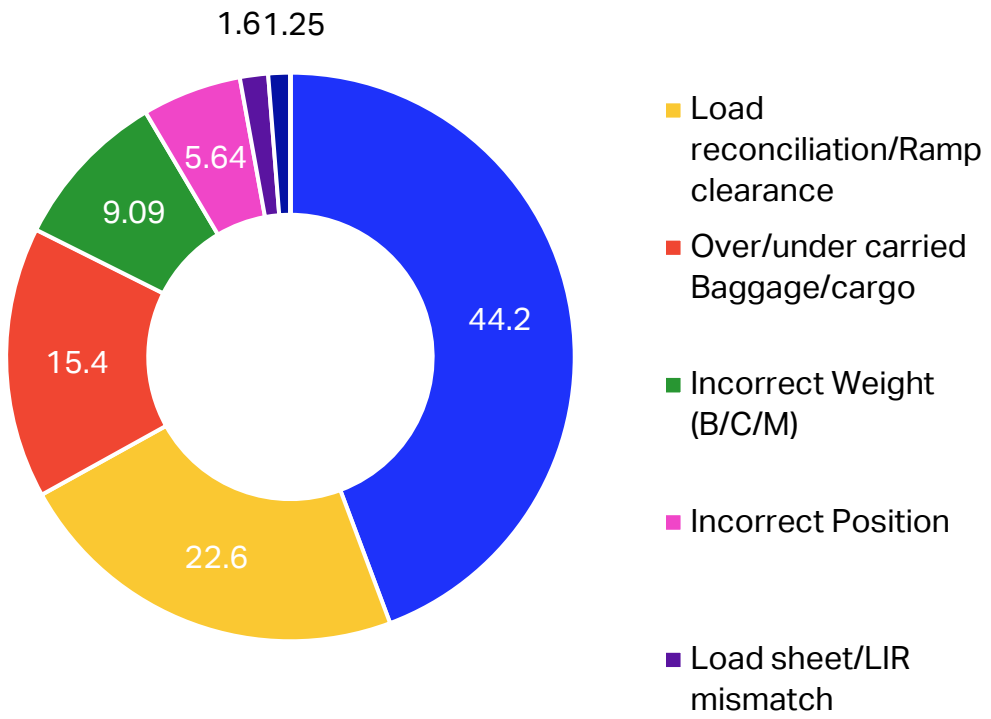
Aims for AHM732:

- Scalable to digital & automation in turnround.
- Performance improvement analysis.
- A-CDM integration.
- Frontline ease of coding with technology.
- Standard for all airlines to use.
- A new way to look at coding not a direct translation.
- More choice and detail.
- Reporting for authorities uniform.

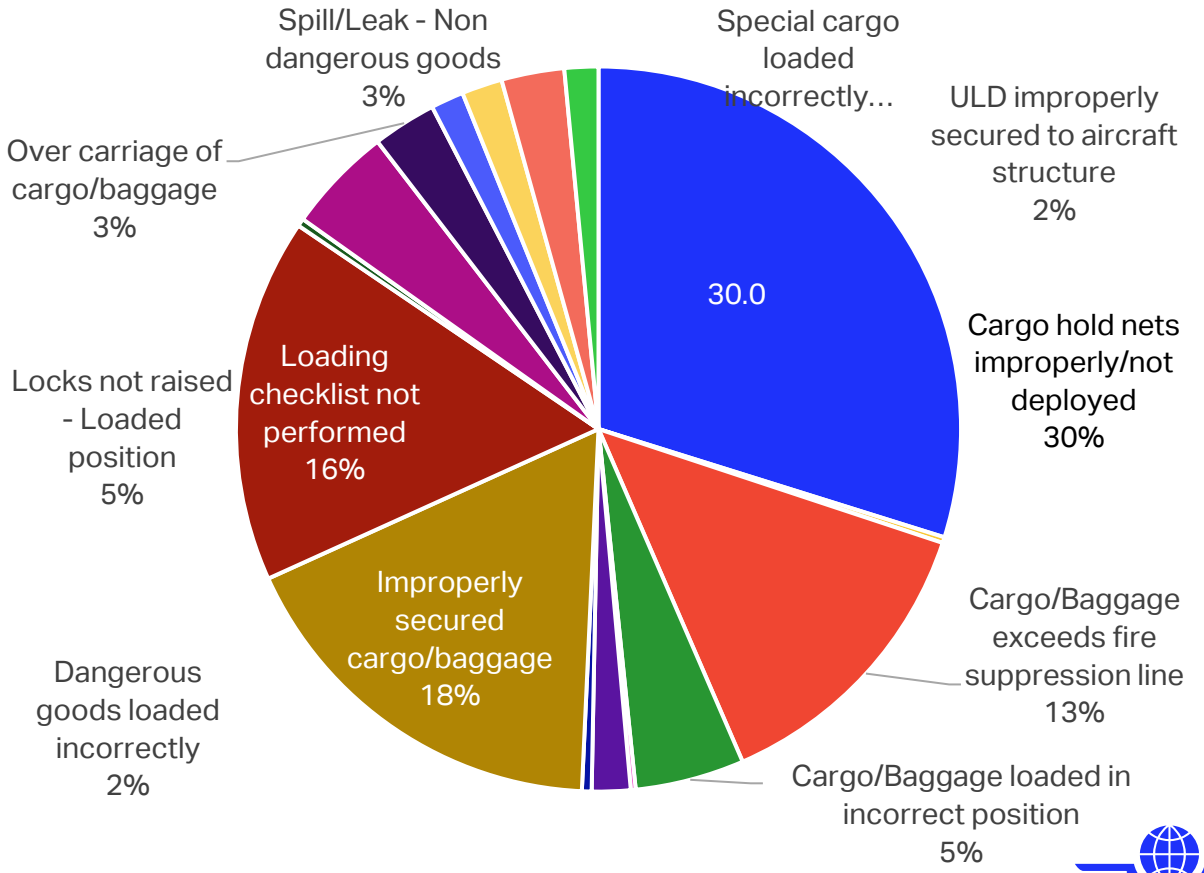
Digital LIR

Aircraft Loading Errors

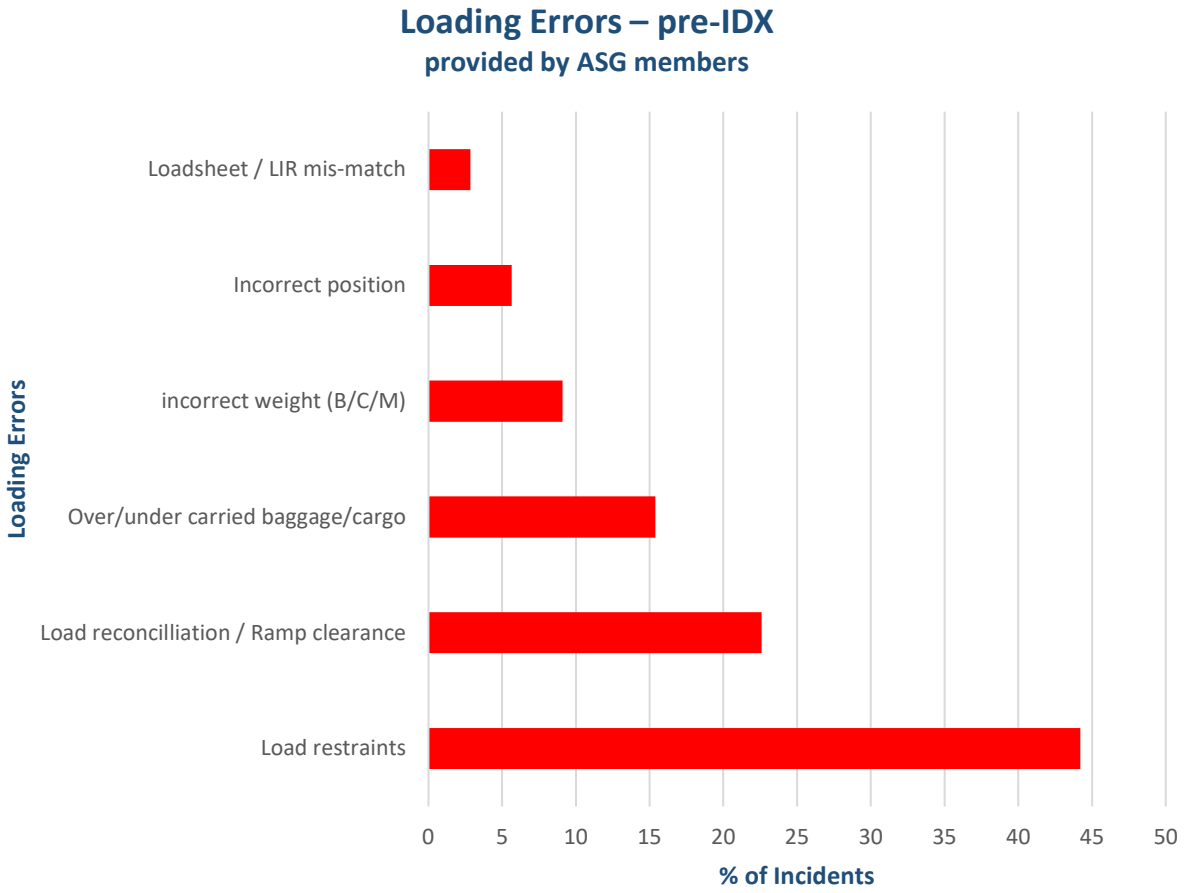
Loading Errors Event Charts Provided by ASG members (pre- IDX)



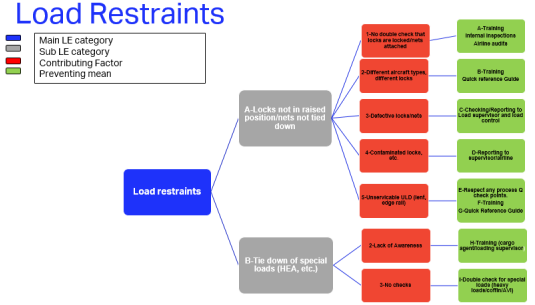
Loading Errors Event Charts IDX



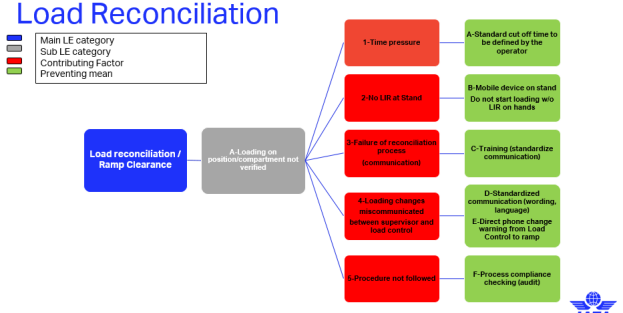
Aircraft Loading Errors



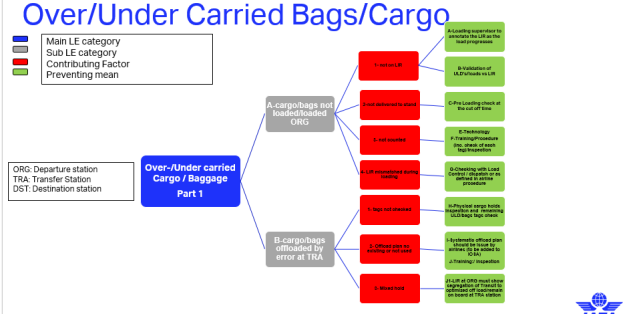
Load Restraints



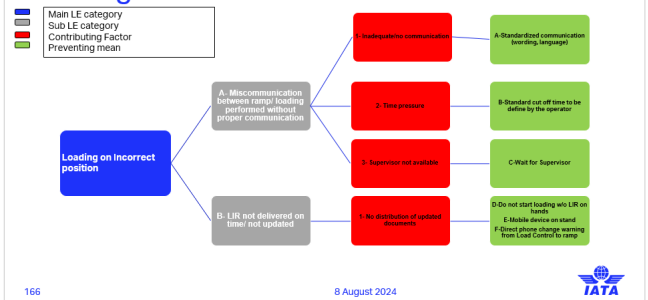
Load Reconciliation



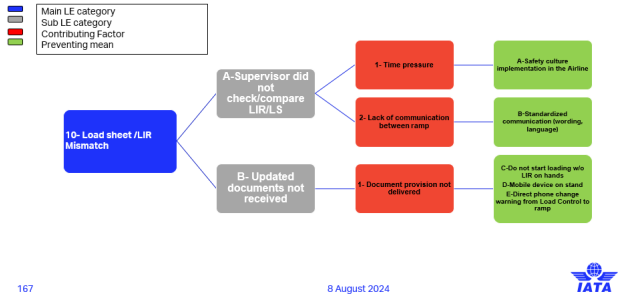
Over/Under Carried Bags/Cargo



Loading Incorrect Position

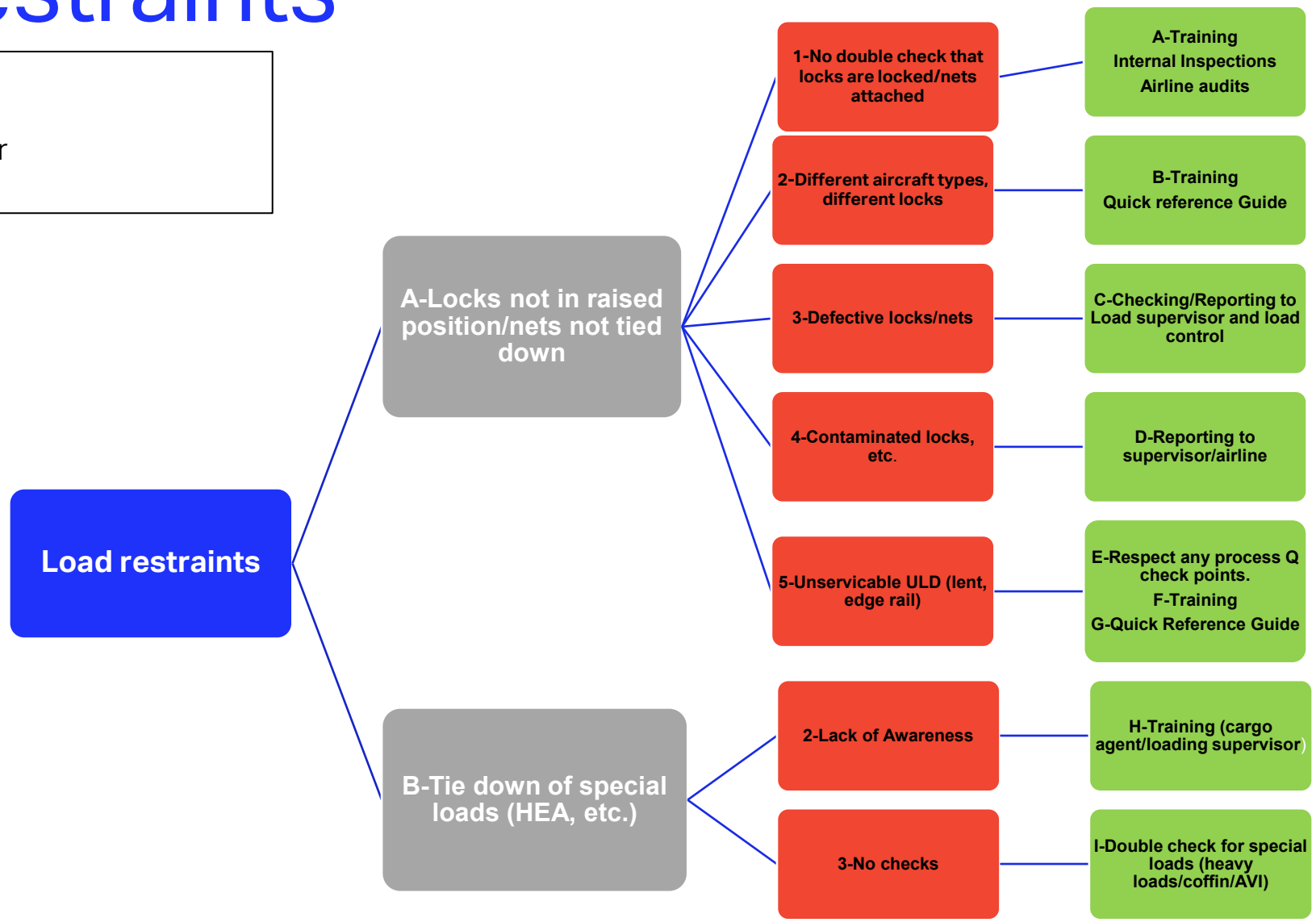


Loadsheet /LIR Mismatch



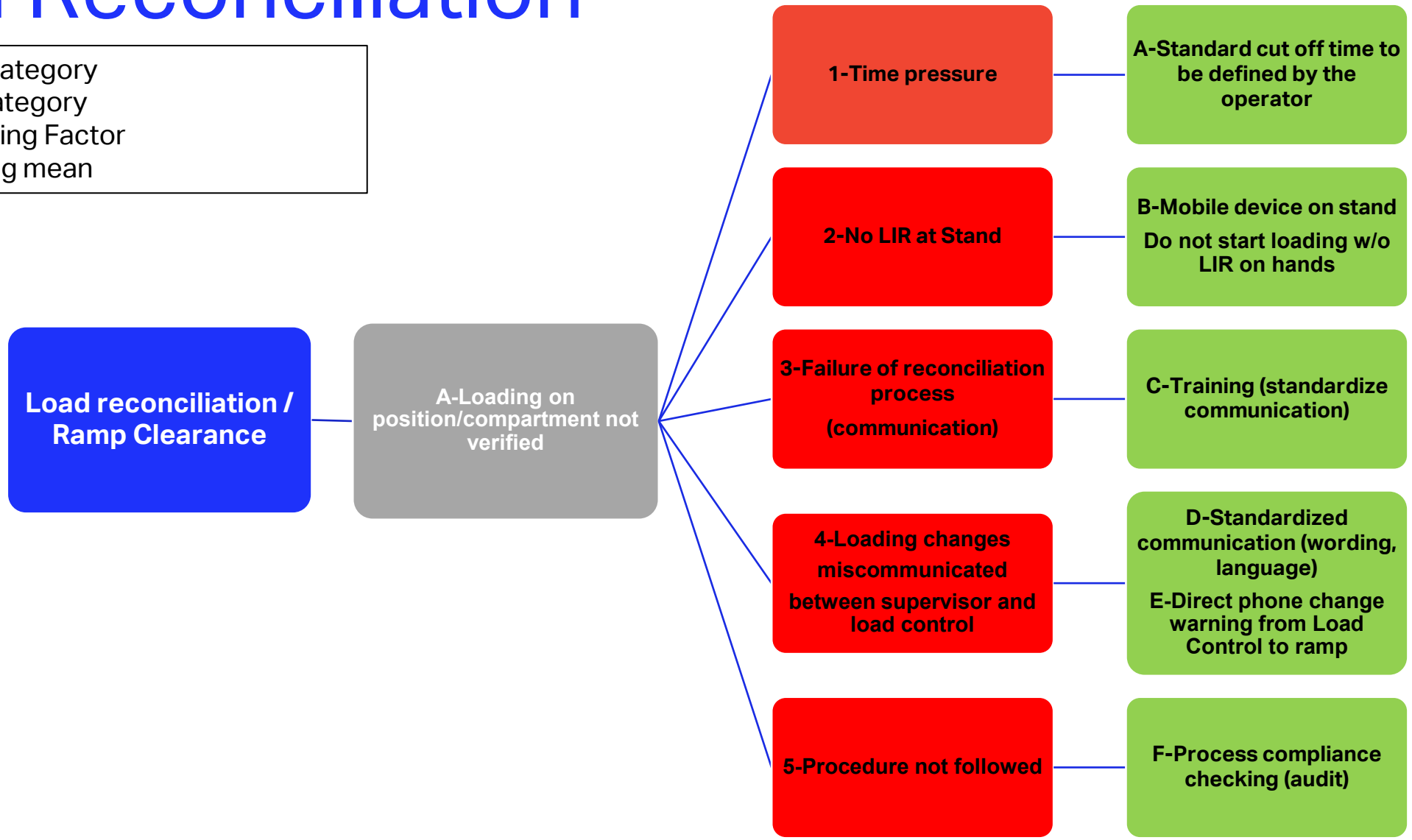
Load Restraints

Main LE category
Sub LE category
Contributing Factor
Preventing mean



Load Reconciliation

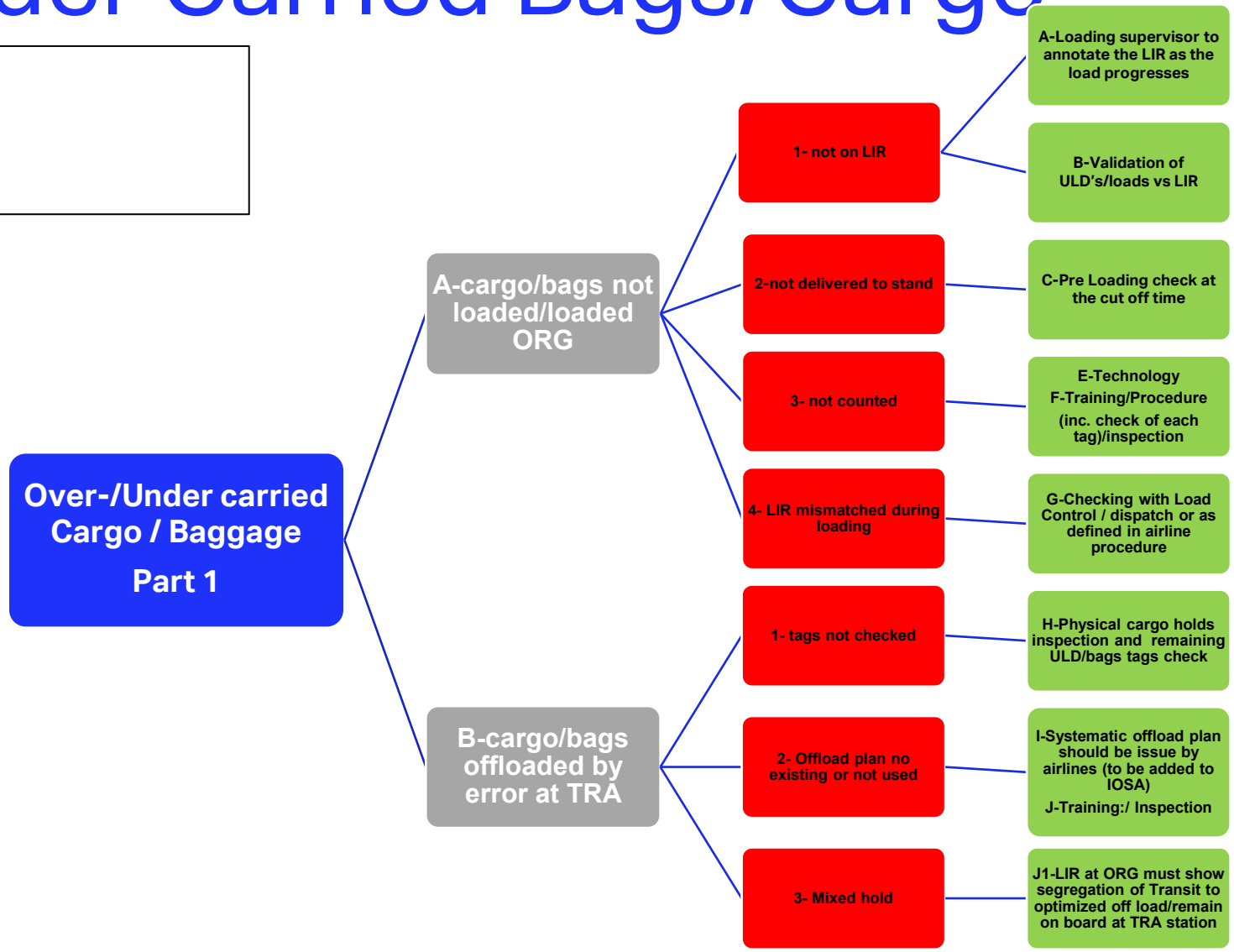
Main LE category
Sub LE category
Contributing Factor
Preventing mean



Over/Under Carried Bags/Cargo

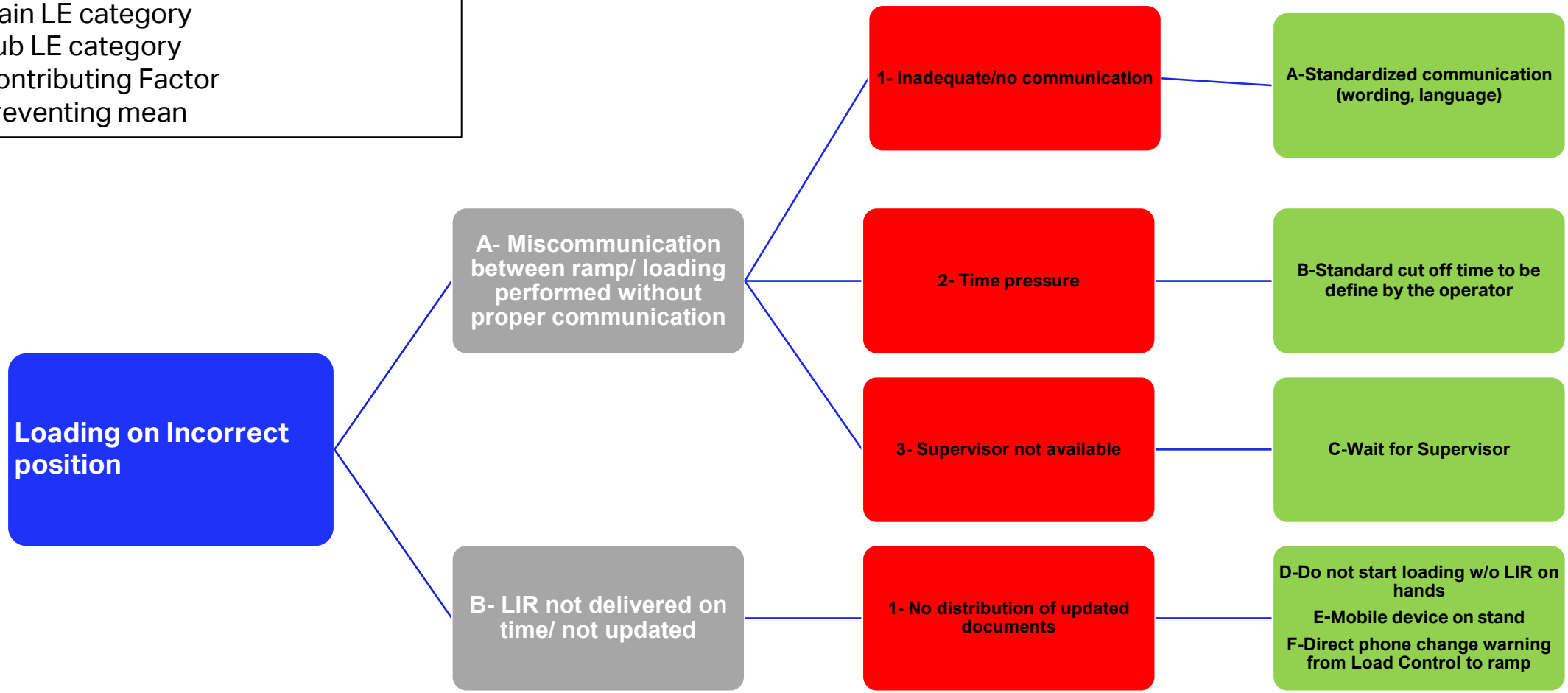
Main LE category
Sub LE category
Contributing Factor
Preventing mean

ORG: Departure station
TRA: Transfer Station
DST: Destination station



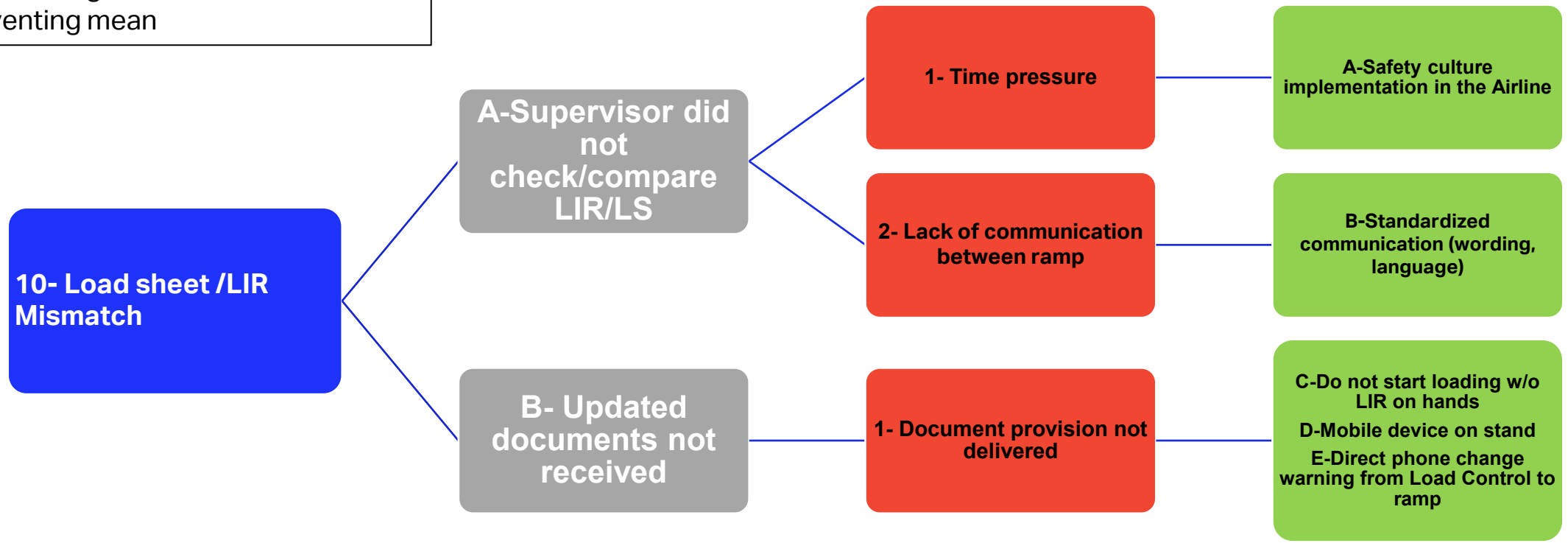
Loading Incorrect Position

Main LE category
Sub LE category
Contributing Factor
Preventing mean



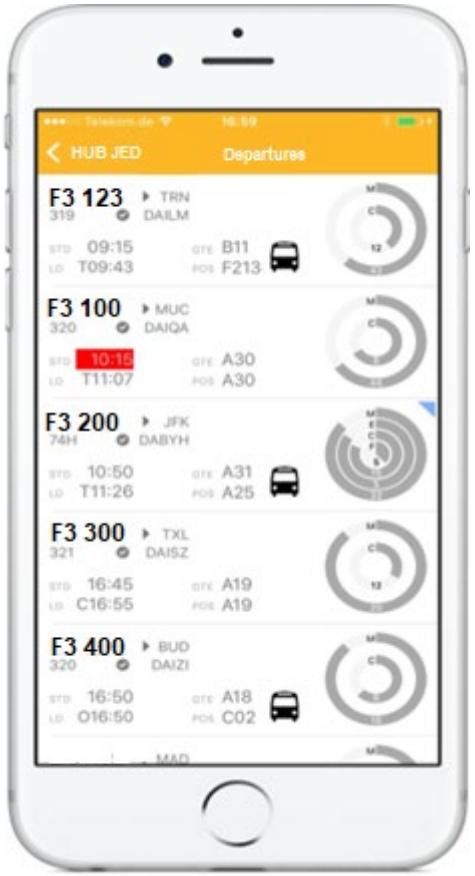
Loadsheet /LIR Mismatch

Main LE category
Sub LE category
Contributing Factor
Preventing mean

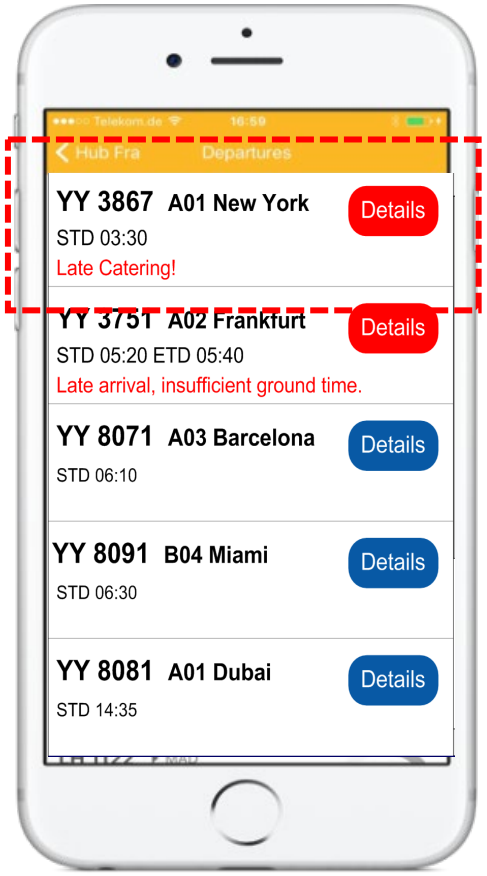


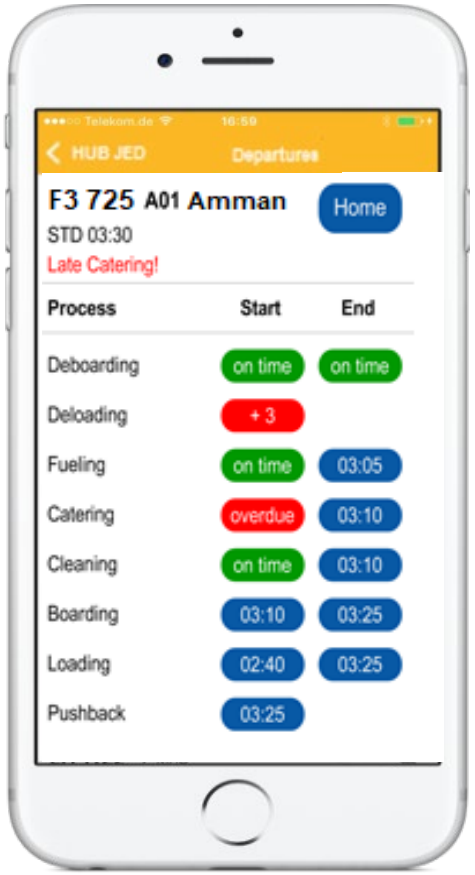
Digital Turnaround

Hub View

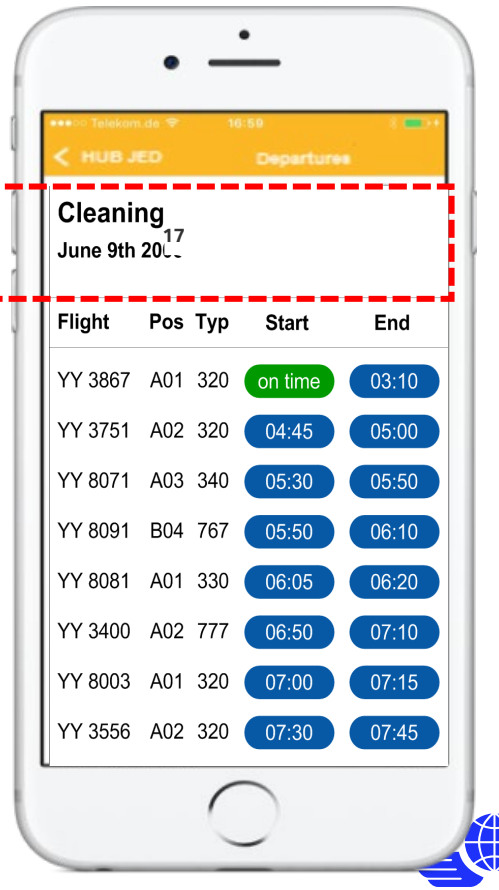


Turnaround View





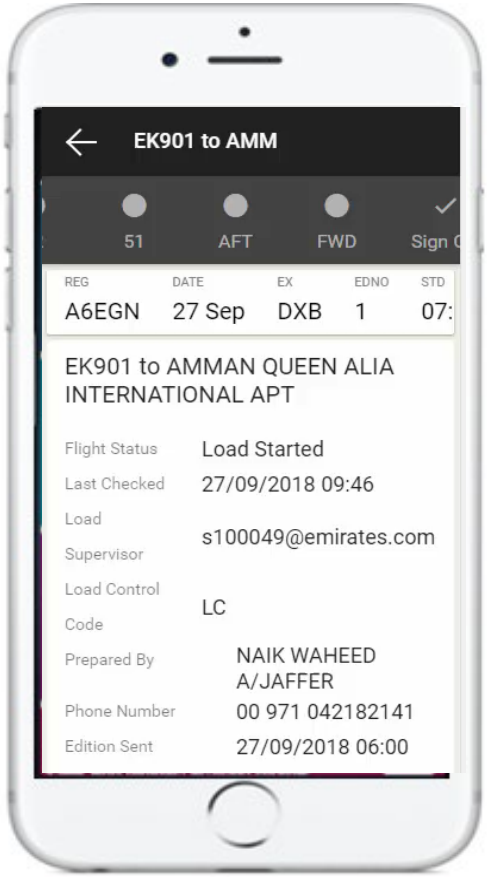
Task View



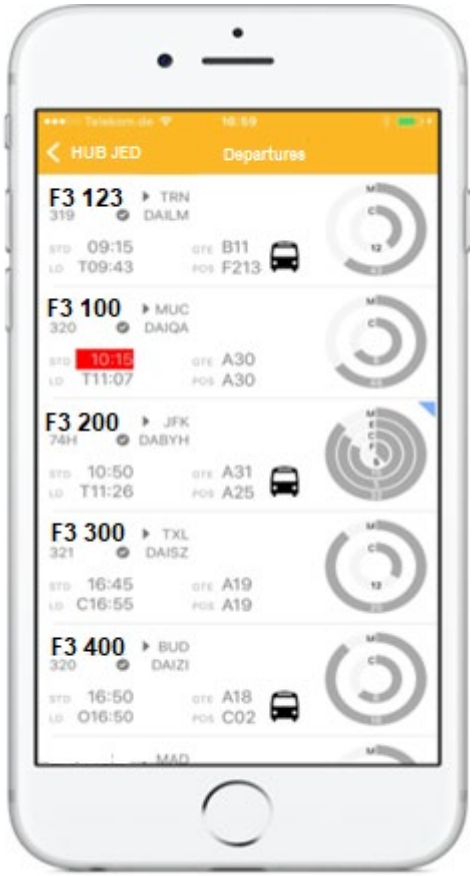
Digital Turnaround

Turnaround Management

Load Reconciliation



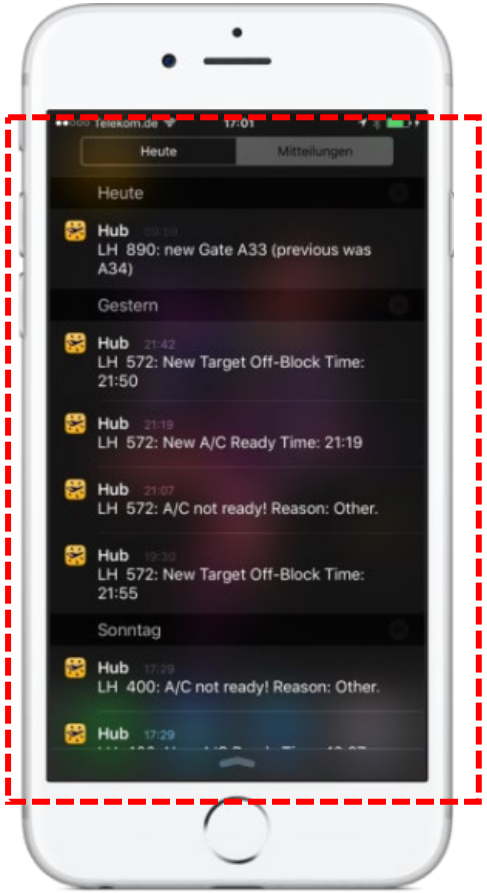
Notifications



Digital Turnaround

Notification

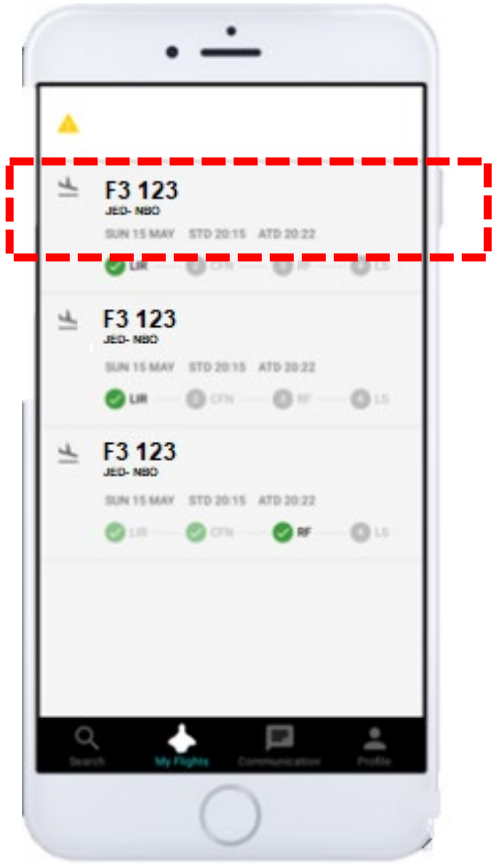
Notification Message Center



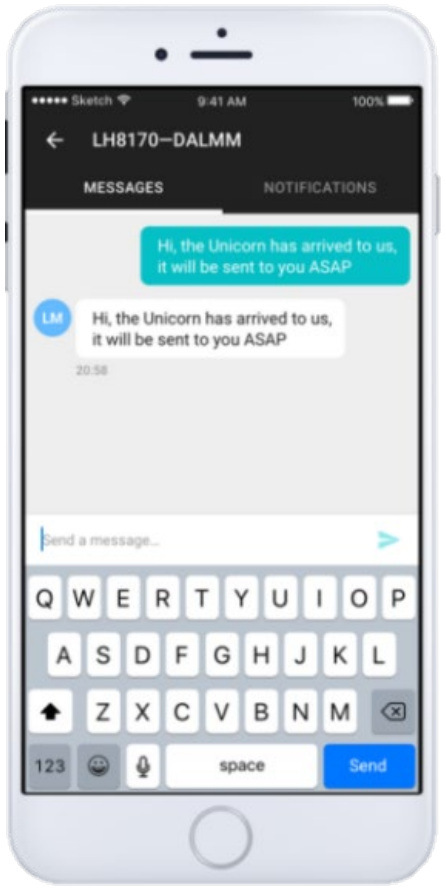
Flight related Notifications

Digital Turnaround

Real-time Notification



Chat



Benefits

Aircraft Loading and Loadsheet Errors reduced by 80%+

Aircraft Loading Delay reduced by 40%

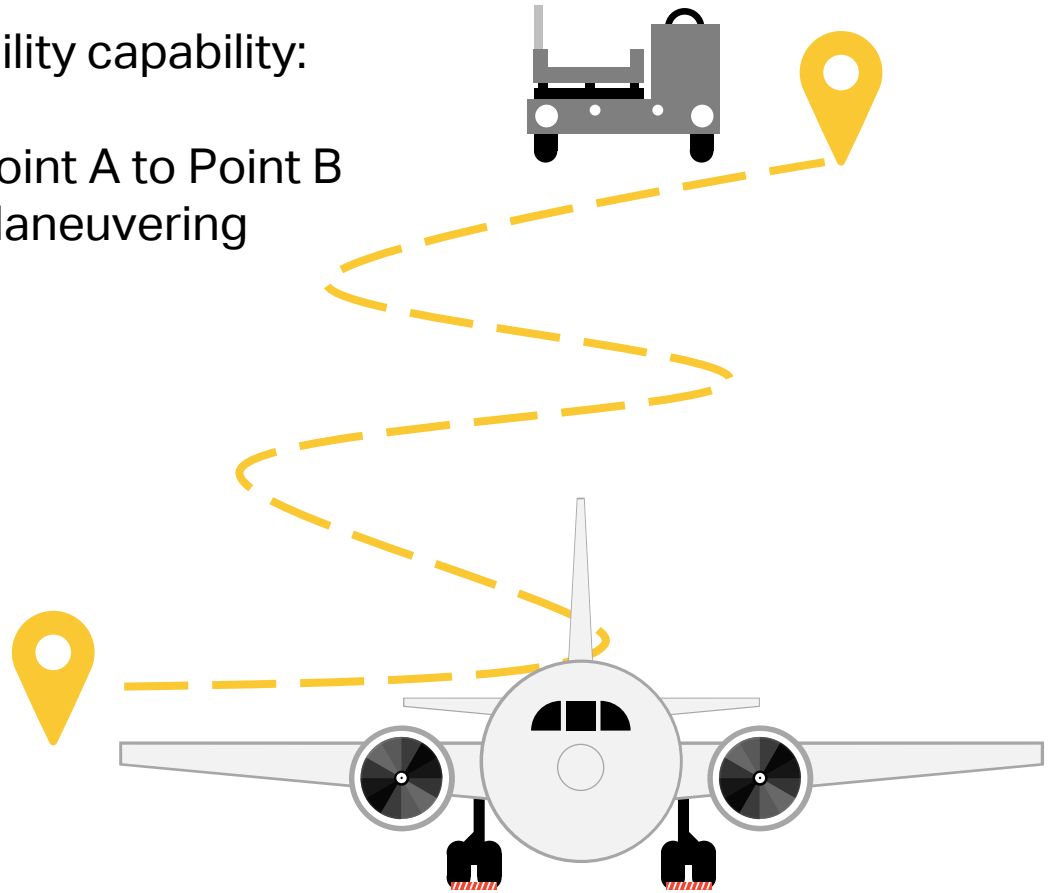
Data Storage & Analysis

Paper Saved

Autonomous GSE - Approach

Mobility capability:

- Point A to Point B
- Maneuvering



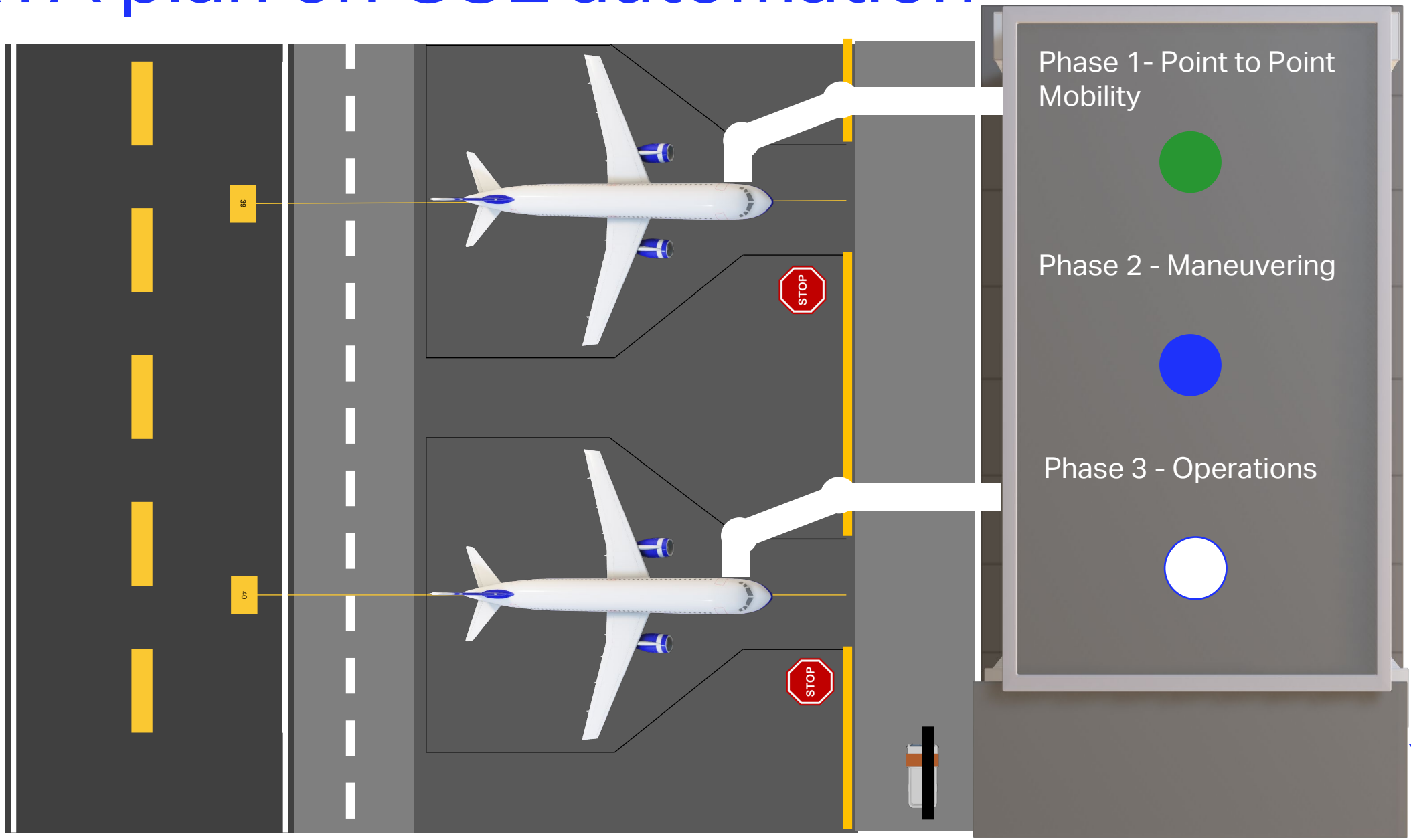
Operations capability:

- Perform its intended function

Autonomous – the next step for the next gen GSE

AHM 908

IATA plan on GSE automation

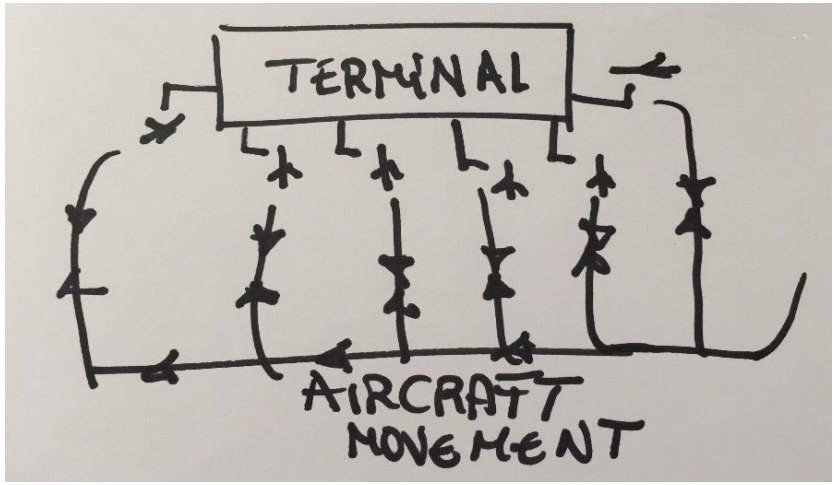


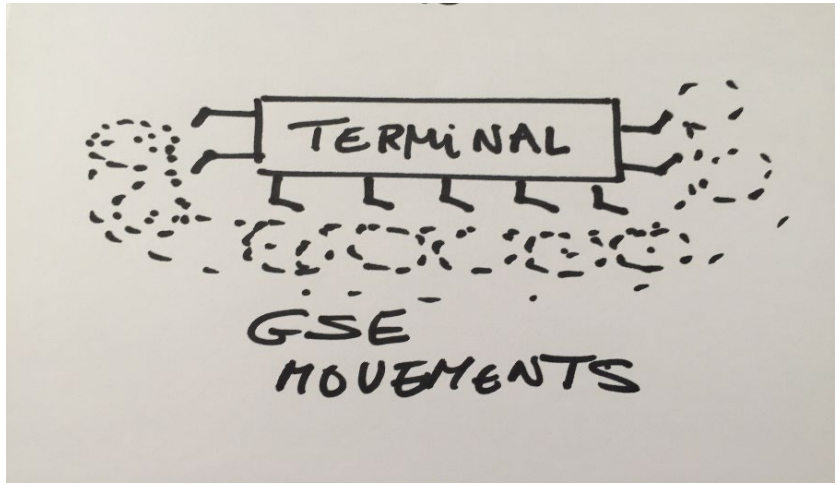
Autonomous GSE – Phase 1 Sketching the Problem

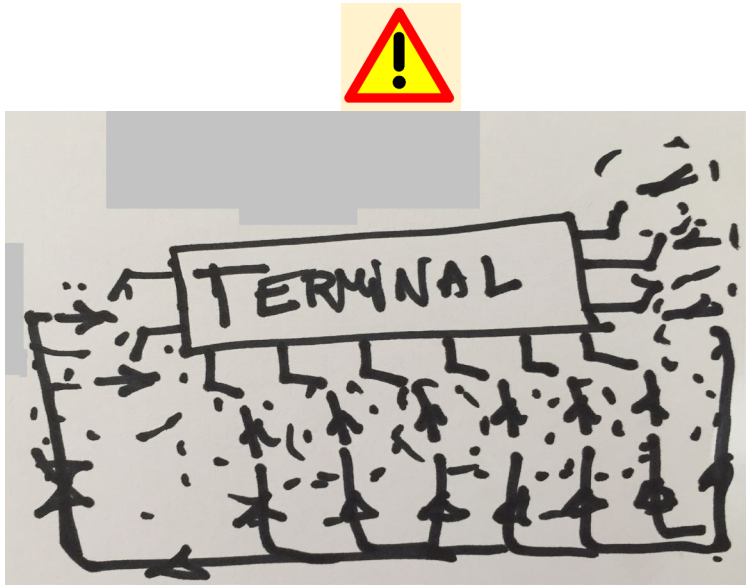
We have strictly regulated and monitored aircraft movements on the ramp

We have multiple GSE moving around the ramp independently, frequently unmonitored

When those two patterns mix, likelihood of incident increases







Autonomous GSE P1 – Point to Point Driving

Preconditions

- Risk assessment
- Testing
- Introduction plan
- Ground awareness and training

General driving

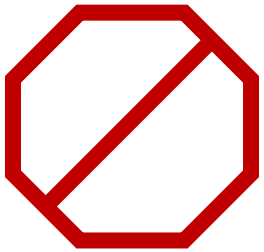
- Visibility and signaling
- Speed limits
- Direction changes
- Acceleration/deceleration

Capabilities

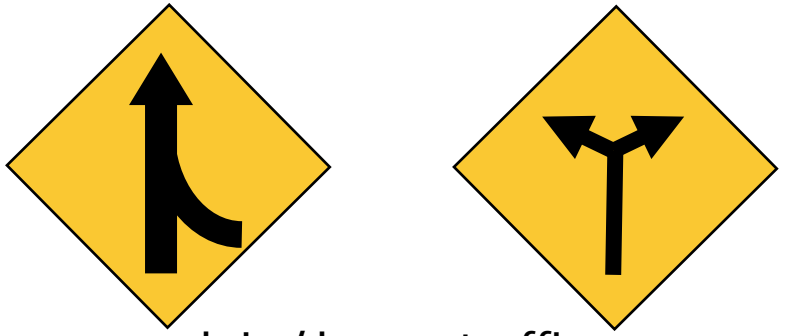
- Fundamental
- Basic
- Intermediate
- Advanced

Autonomous GSE P1 – Capabilities examples

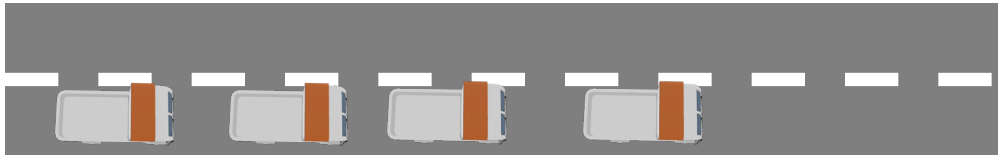
Basic



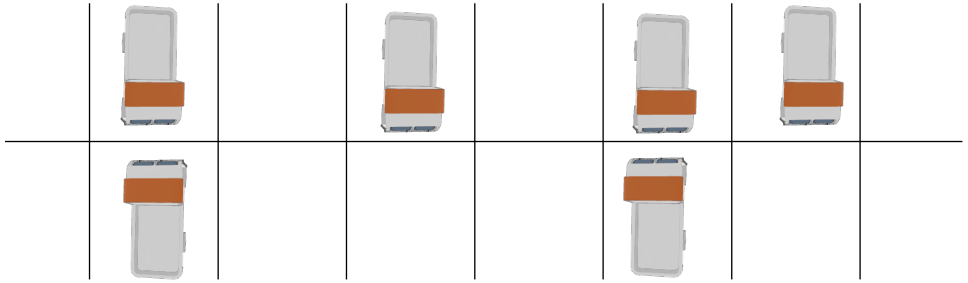
Identify no go zones



Join / Leave traffic

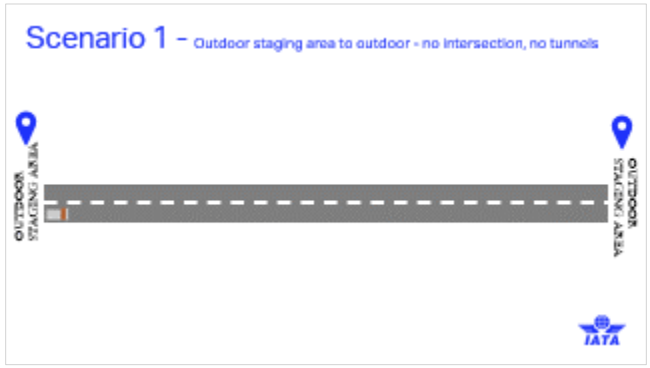


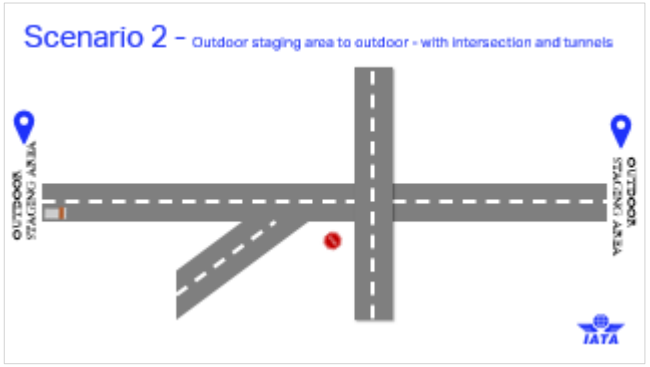
Driving in Congestion

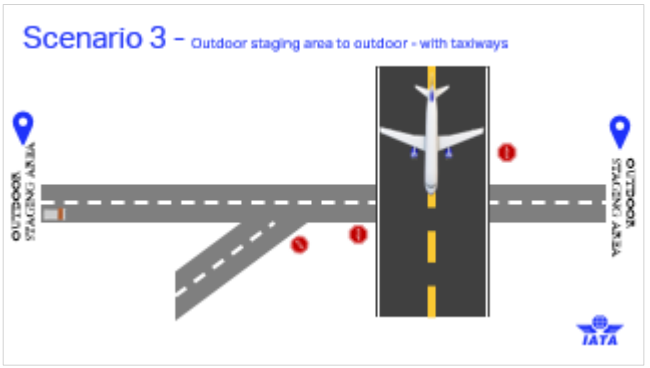


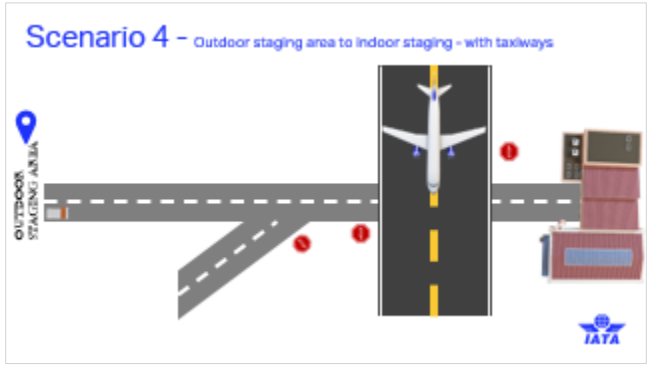
Parking

Autonomous GSE P1 – Use case scenarios



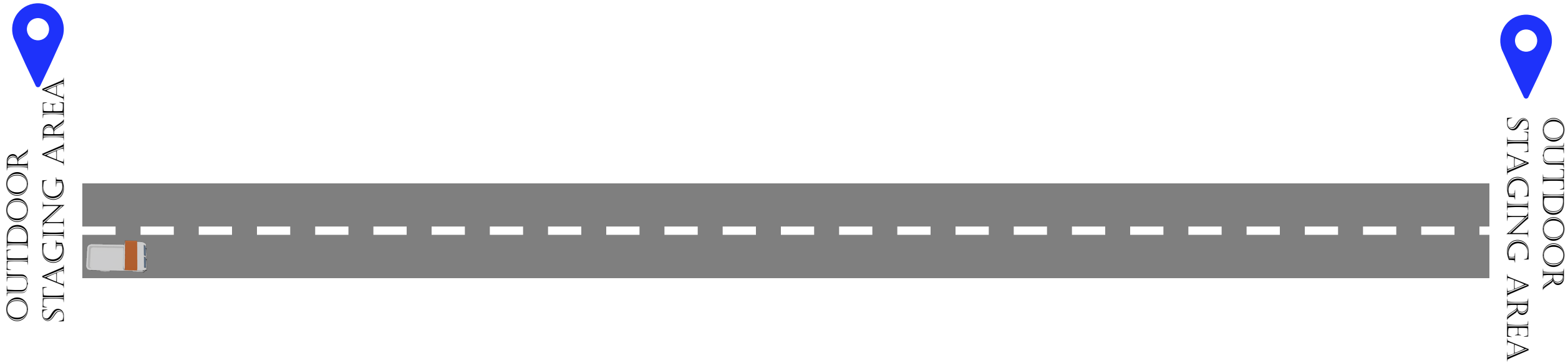




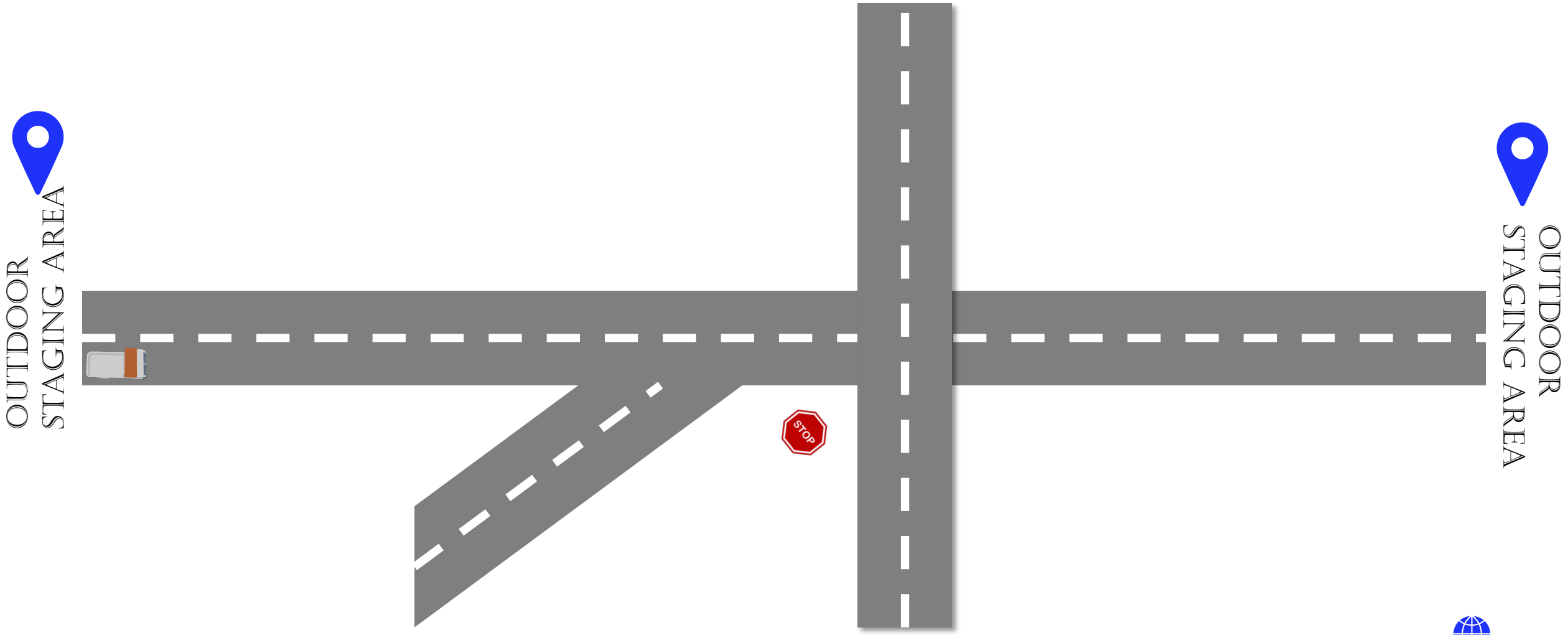


IATA

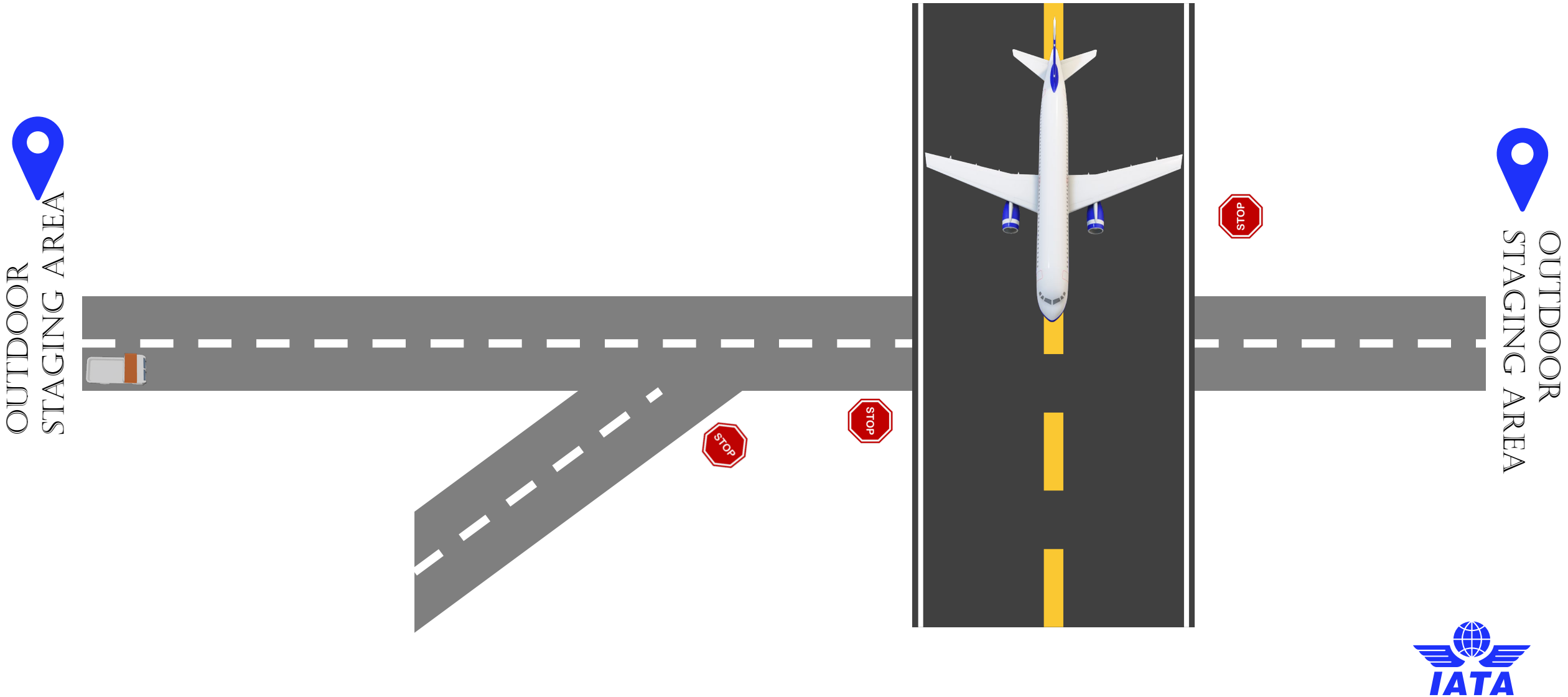
Scenario 1 - Outdoor staging area to outdoor - no intersection, no tunnels



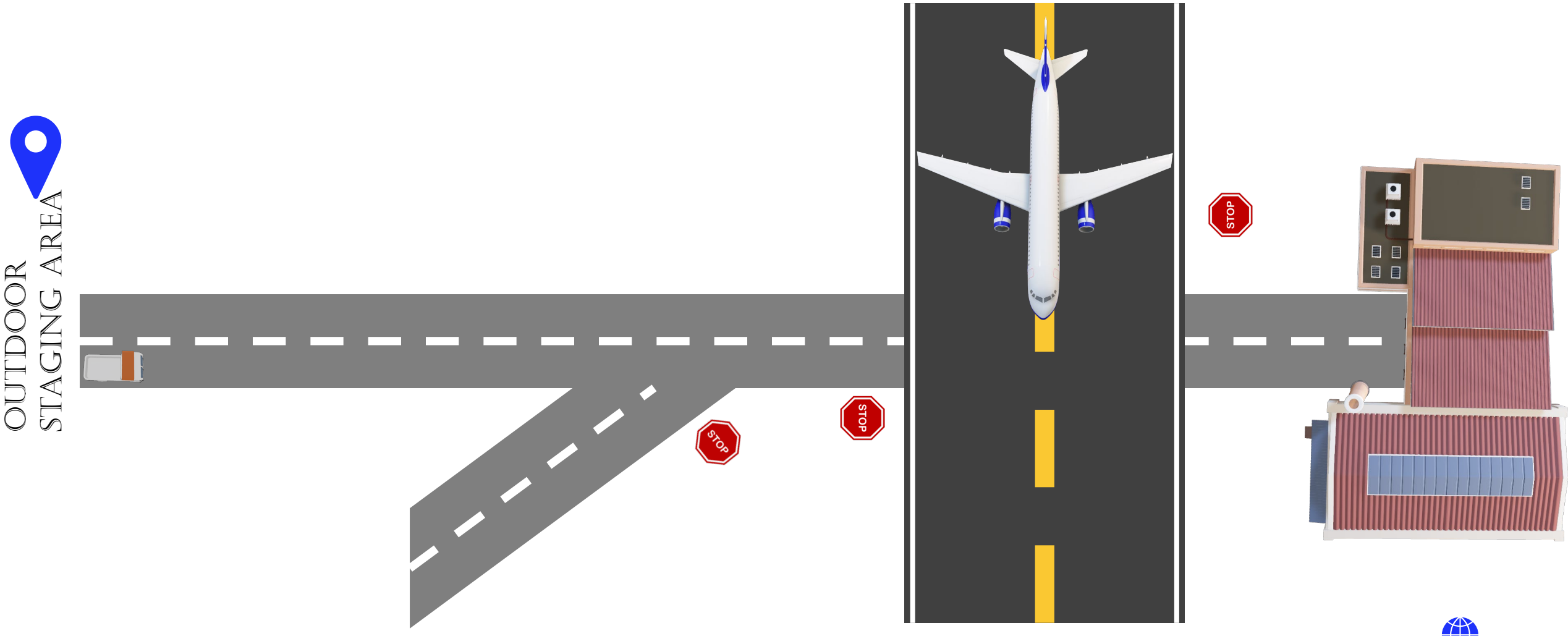
Scenario 2 - Outdoor staging area to outdoor - with intersection and tunnels



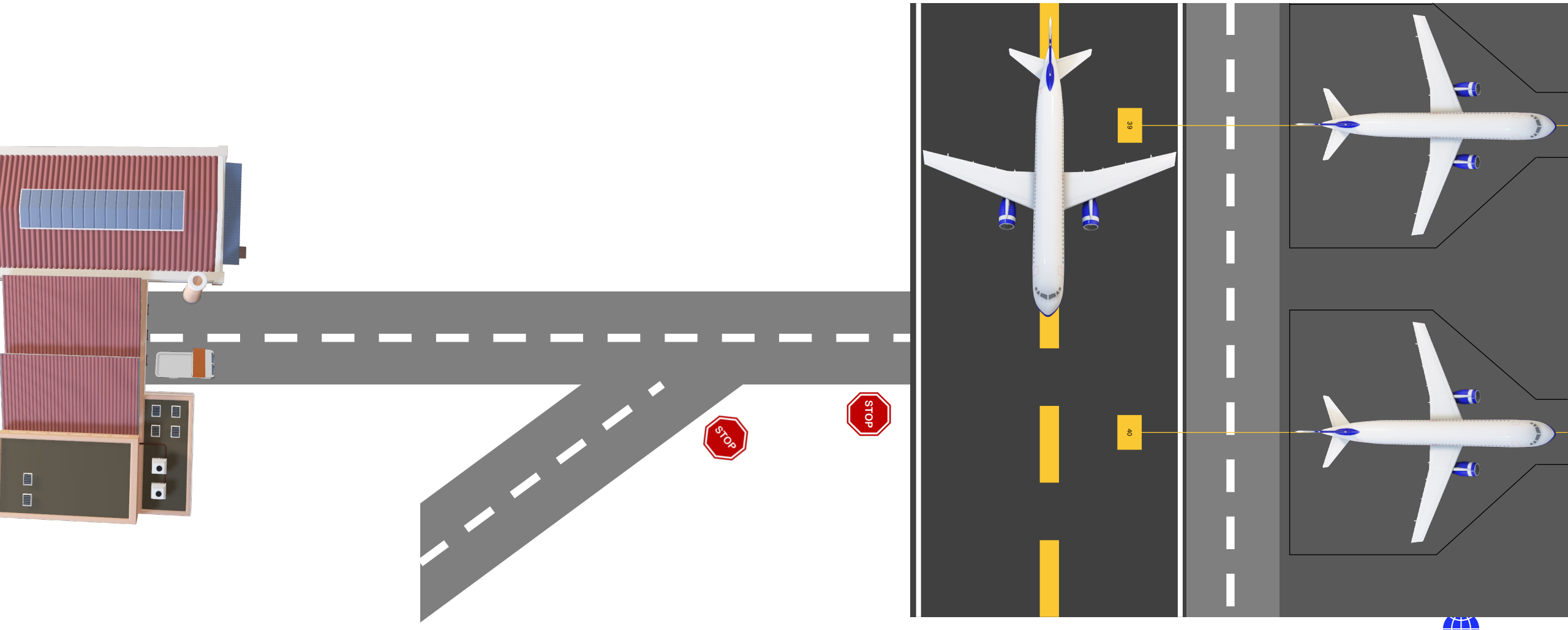
Scenario 3 - Outdoor staging area to outdoor - with taxiways



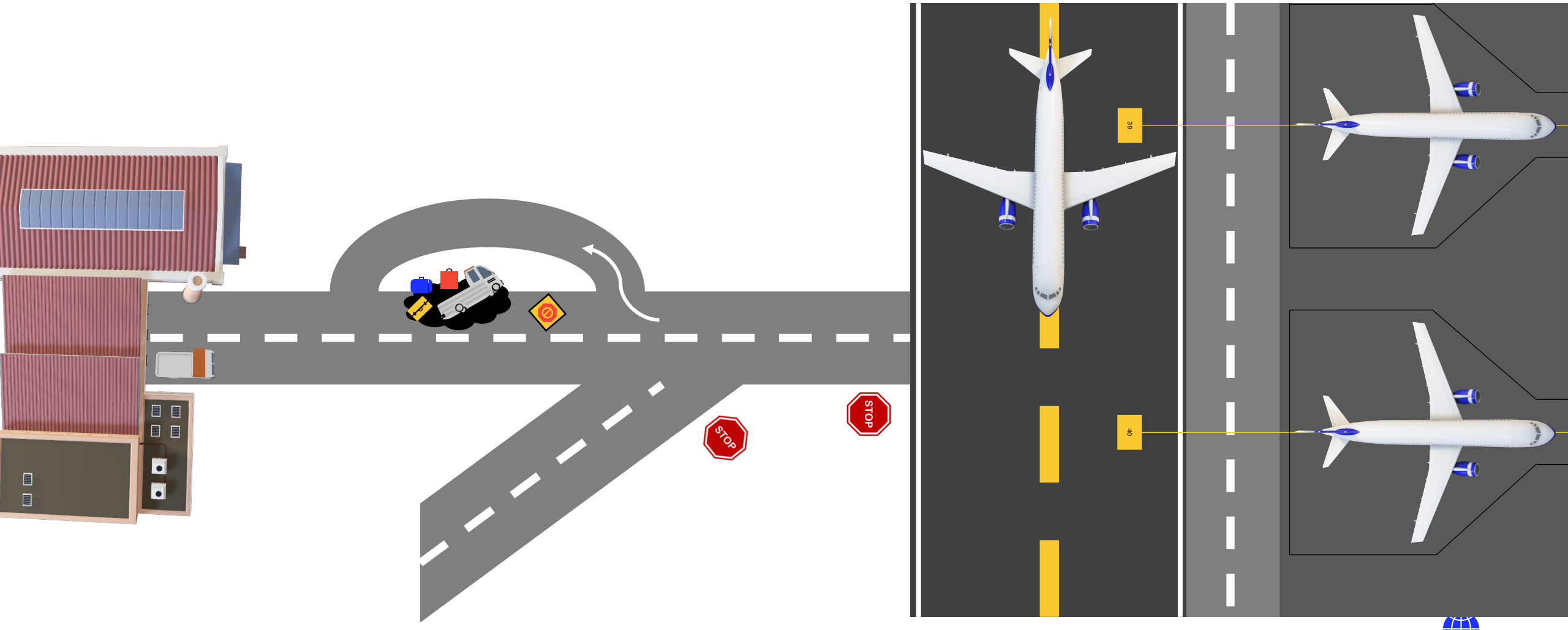
Scenario 4 - Outdoor staging area to indoor staging - with taxiways



Scenario 5 - Indoor staging area to ERA - with taxiways



Scenario 6 - Indoor staging area to ERA - with taxiways - diversions



Autonomous GSE P2 – Maneuvering in ERA

Identification

- Identify location and boundary
- Aircraft at stand
- Entry and exit corridors

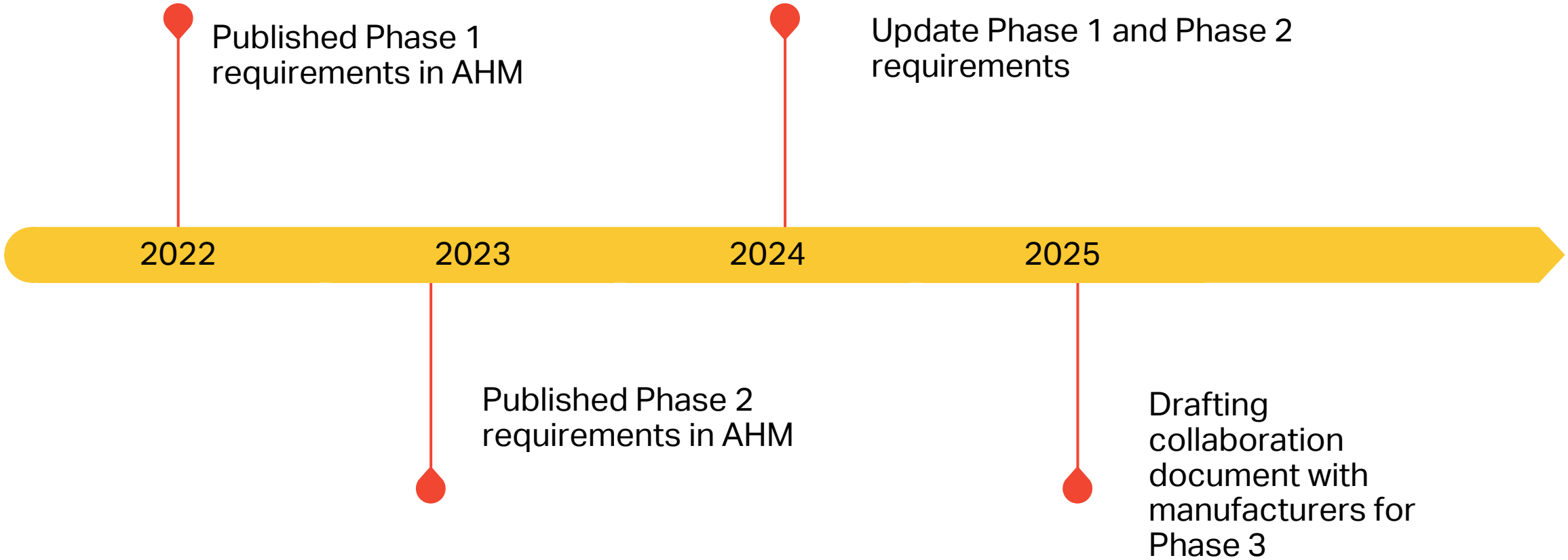
Maneuvering

- At “tortoise mode”
- No driving/parking under aircraft wings
- No impeding emergency services
- Maintain minimum distance from aircraft

Capabilities

- Depending on the local requirements, these can vary

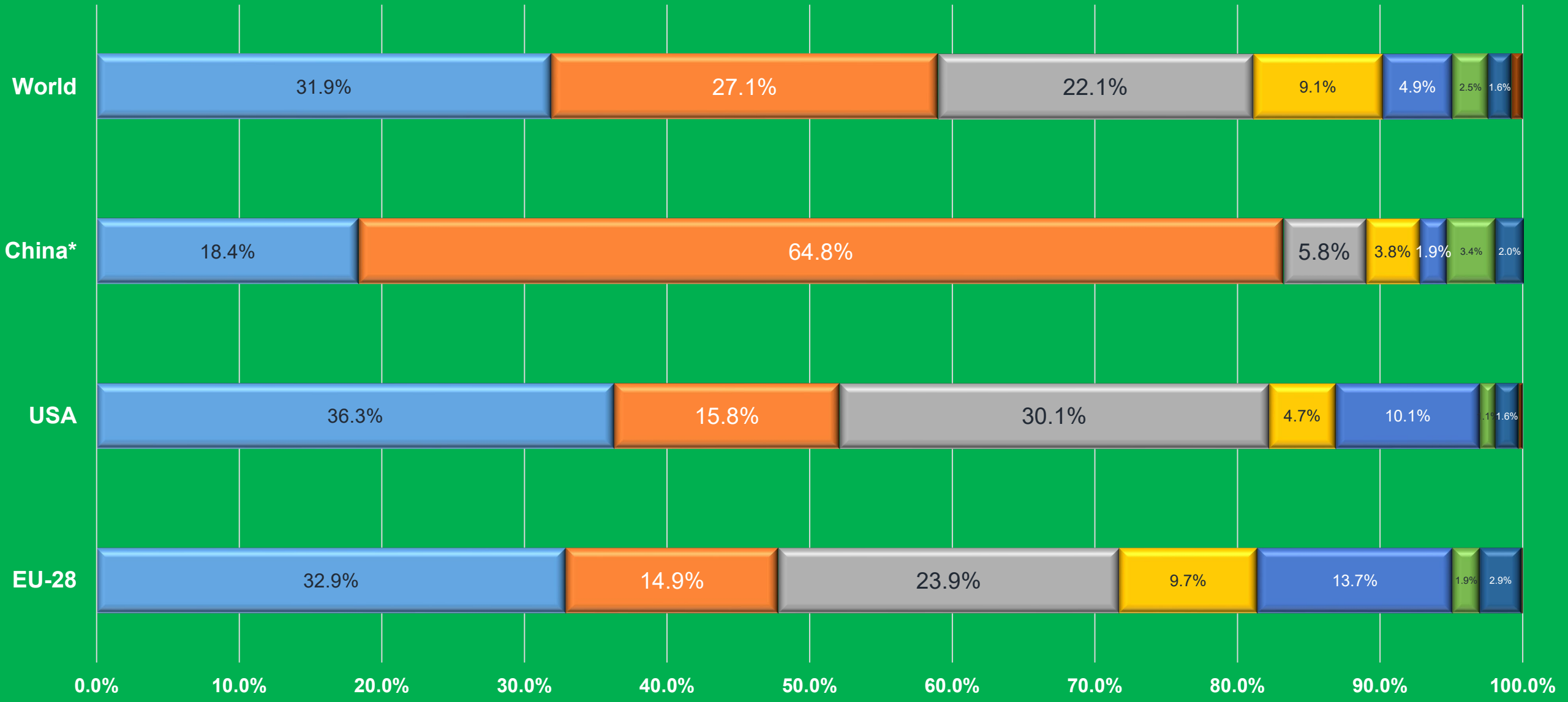
Autonomous GSE - Timeline



groundops@iata.org

Green GSE

Things to consider - Energy Mix



*excluding HKG

IEA World Energy Database

GSE CO_2 Emissions

GSE Category	Average GSE Fuel* Consumption liter per hour	Average CO_2 Emissions Traditional GSE kg/h	Average GSE Electricity Consumption kWh per Ops Hour	Average CO_2 Emissions eGSE kg/h
Cargo / Baggage Tractor	6.32	16.75	12.10	5.74
Cargo Load / High Loader	5.50	14.58	7.80	3.70
Belt Loader	5.79	15.34	12.24	5.80
Container / Pallet Transporter	2.70	7.16	12.70	6.02
Push-back / Tow Tractor	11.20	29.68	27.50	13.03
Aircraft Refueling Vehicle	15.71	41.63	15.71	41.63
Ground Power Unit (GPU)	12.20	32.33	27.50	13.04
Catering Vehicle	3.12	8.27	15.90	7.54
Lavatory Service Vehicles	2.70	7.16	13.90	6.59
Potable Water Trucks	2.28	6.04	12.40	5.88
Passenger Stairs	1.20	3.18	0.00	0.00
Crew Bus	0.99	2.62	2.93	1.39
Passenger Bus	3.35	8.88	11.34	5.38
Car / Van	0.88	2.34	2.32	1.10
Pick-ups of ramp personnel	1.18	3.12	2.62	1.24
Air Conditioning Unit (ACU)	20.00	53.00	85.00	40.29
TOTAL	**95.12**	**252.07**	**261.95**	**158.35**

GSE Noise Comparison

Very high ≥ -13dB(A)
High ≥ -10dB(A)
Medium ≥ -3.1dB(A)
Low ≤ -3dB(A)

GSE Category	Noise Emissions Traditional GSE dB(A)	Noise Emissions eGSE dB(A)	Difference dB(A)	Impact
Cargo / Baggage Tractor	83.00	70.70	-12.30	High
Cargo Load / High Loader	84.87	77.80	-7.07	Medium
Belt Loader	80.55	67.50	-13.05	Very high
Container / Pallet Transporter	81.00	73.50	-7.50	Medium
Push-back / Tow Tractor	86.20	78.40	-7.80	Medium
Aircraft Refueling Vehicle*	79.00	N/A	0.00	N/A
Ground Power Unit (GPU)	76.50	63.40	-13.10	Very high
Catering / Cleaning Vehicle	74.00	68.00	-6.00	Medium
Lavatory Service Vehicles**	75.40	68.20	-7.20	Medium
Potable Water Trucks**	74.90	69.20	-5.70	Medium
Passenger Stairs	65.00	63.00	-2.00	Low
Crew Bus	73.00	65.00	-8.00	Medium
Passenger Bus	74.80	64.90	-9.90	High
Car / Van	67.00	58.00	-9.00	Medium
Pick-ups of ramp personnel	73.19	65.00	-8.19	Medium
Air Conditioning Unit (ACU)***	85.00	82.00	-3.00	Low
Ambient Noise	63.00	63.00	0.00	
TOTAL			**Ø -7.50 dB(A) per GSE**	

Aircraft Types & GSE Assumptions


RJ / TP


A320 Neo (ULD)


A320 Bulk


B737F


A350


B747F

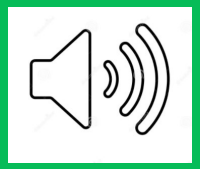
Assumptions:

- Drive & idle emissions included in the averages
- Nose-in parking (push-back needed)
- Fueling w/o hydrant
- Lavatory / Potable Water / Catering dependent on the station
- Stairs used instead of Boarding Bridge
- Stairs only use energy while being positioned, afterwards they are off and secured
- Use time of cargo / baggage tractors includes shuttle between facility / warehouse and the aircraft
- Mobile GPU use

CO_2 Emissions Difference per Turn-Around

Aircraft Type	Average CO_2 Emissions Traditional GSE kg per Turn-Around	Average CO_2 Emissions eGSE kg per Turn-Around	Difference
 RJ / TP	50.4	26.0	**- 48.41 %**
 A320 (ULD)	112.3	65.9	**- 41.32 %**
 A320 (Bulk)	104.6	50.0	**- 52.2 %**
 B737F	77.8	40.82	**- 47.53 %**
 A350	278.91	181.36	**- 34.97 %**
 B747F	268.55	142.48	**- 46.95 %**

GREEN GSE



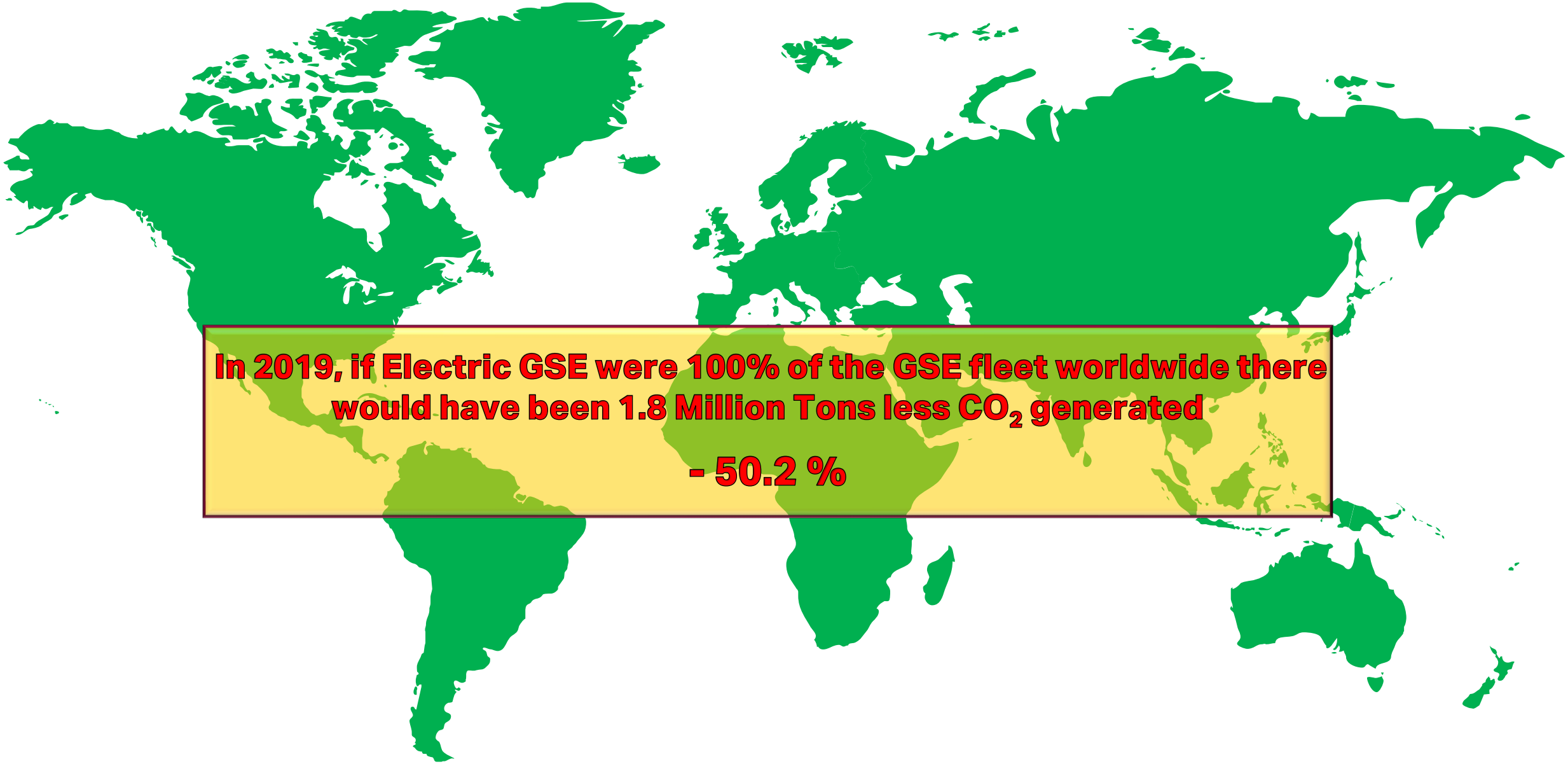
NOISE

Reduction between 5.5 dB(A) up to 8.3 dB(a) of Noise

CO_2

Reduction between 35% up to 52.2% of CO_2 emissions

IATA


In 2019, if Electric GSE were 100% of the GSE fleet worldwide there would have been 1.8 Million Tons less CO_2 generated
- 50.2 %

Transition from internal combustion engine (ICE) to electric GSE

01

GSE fleet – ICE vs Electric

- Advantages
- Limitations
- Challenges
- Environmental impact

02

Integration of electric GSE at an airport

- Necessary considerations
- Best practices
- Infrastructure

03

Electric GSE operations

- Recharging procedures
- Operational hours
- Maintenance requirements
- Operational efficiency

04

Scenarios

- Timeframes
- Feasibility
- Costs

GSE pooling


Sustainable fuel

Standards and Recommended Practices

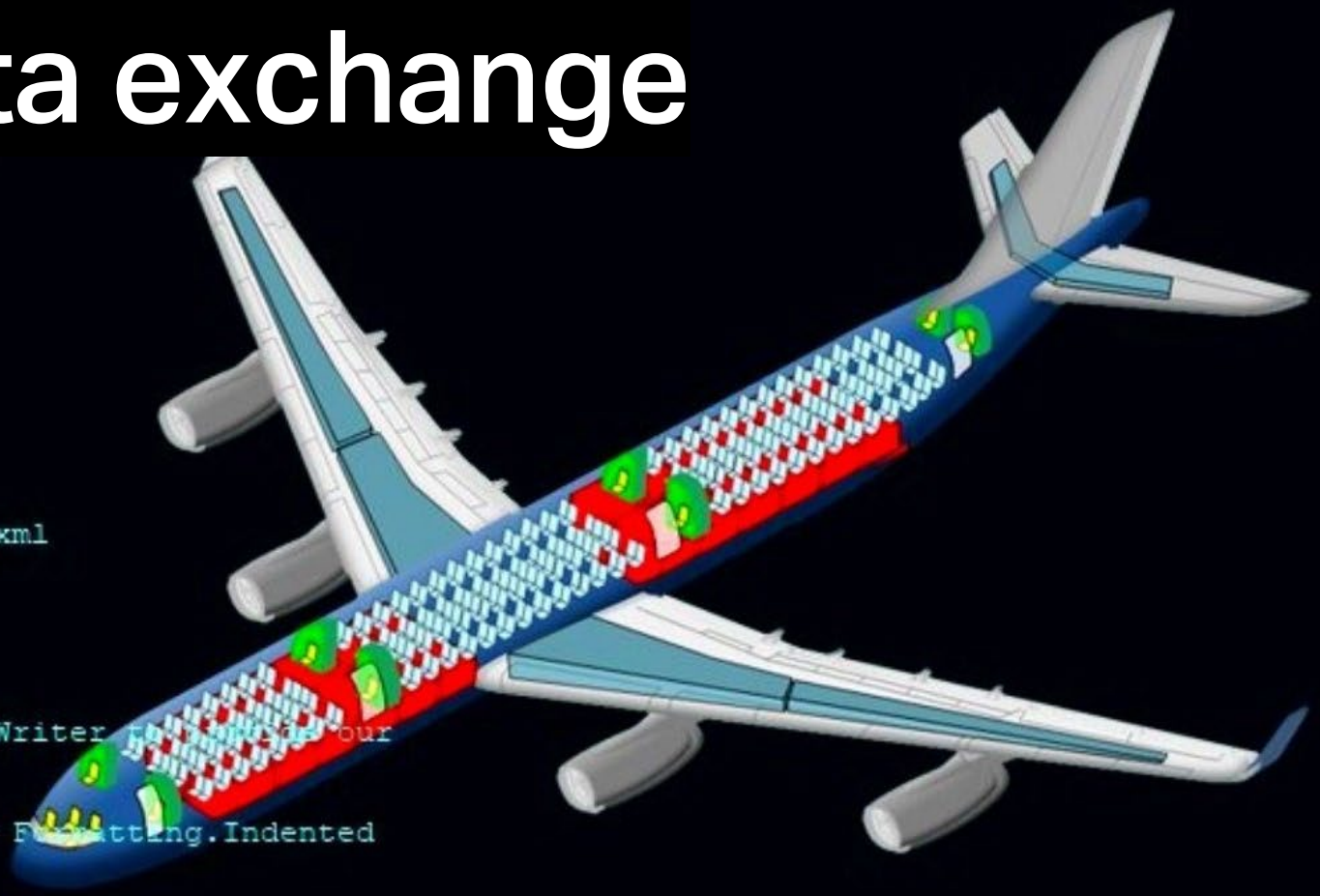
Electric GSE

GSE Pooling

Digital Aircraft Load Control Data X565

Aircraft data exchange

```
Dim swRMSRequest
Dim txtstr As St
'swRMSRequest =
swRMSRequest = File.CreateText(strPath)
Dim xmldoc As XmlDocument = New XmlDocument()
'xmldoc.LoadXml(dtRow("RMS_reqSentM"))
xmldoc.LoadXml(strmessage)
Dim sb As New StringBuilder()
'''`'We will use stringWriter to push the formated xml
into our StringBuilder sb.`
Using stringWriter As New StringWriter(sb)
    '' `'We will use the Formatting of our xmlTextWriter
ation.`
                    xmlTextWriter.Formatting = Formatting.Indented
          xmldoc.WriteTo(xmlTextWriter)
              swRMSRequest.Close()
  End If
qType = "XML") Then
Dim swRMSRequest As StreamWriter
Dim txtstr As String = String.Empty
'swRMSRequest = File.CreateText(strFileRMSRequest)
```

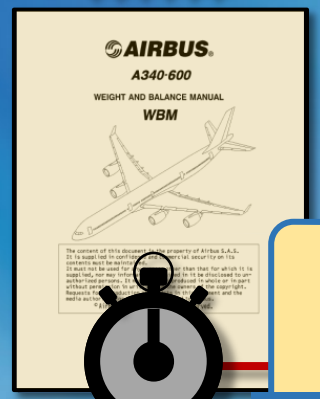


BASIC WEIGHT	CREW PANTRY	LOADING SYSTEMS	CABIN SEATS	FUEL TANKS

The Old Way!

Airline Weight & Balance Engineer → Airline DCS Data Analyst → Load Control

$$$$$$ $$$$$$ $$$$$$ $$$$$$ $$$$$$ $$$$$$



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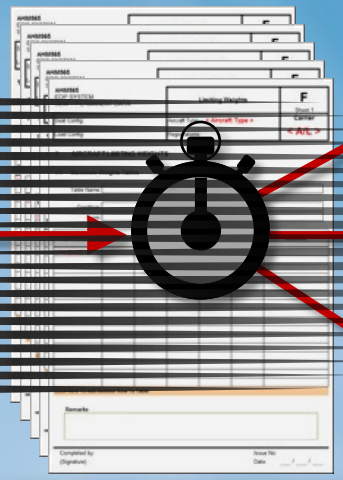
eAHM565

- CG Envelope Design
- Operational Curtailments
- Fuelling (Wt/Index) Tables
- Refuelling Sequencing
- Cargo Hold Max Weights
- Cargo Hold Locking Configurations
- Maximum Cargo Weights
- Load Limitations
- Cabin Locations
- Seating Tables
- Passenger Seating
- Cabin Crew Locations
- & Cabin Locations
- Crew Weight/Distribution
- Standard Pax & Bag Weights
- Water Wt & Distribution
- Service Weight Adjustments
- Aircraft Starting Weight/IU
- Maximum Operating Weights
- Valid ULDs
- CG Reference & IU Constants



Aircraft Manufacturer

Manual Data Entry

Manual Data Entry

Manual Data Entry

DCS Database 1

DCS Database 2

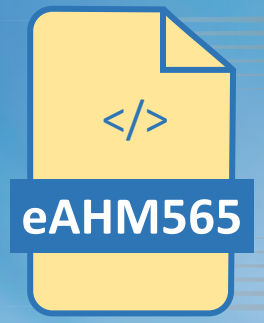
DCS Database 3

DCS DCS

DCS DCS

DCS DCS

The New Way!



DCS Database 1

DCS

DCS

DCS Database 2

DCS

DCS

DCS Database 3

DCS

DCS

2017 Project Conception

2018 Industry Analysis

2019 XML Design & Development

2020 Testing & Evaluation

2021 Implementation Guide

B. Rekencentra nv

amadeus

BOEING

AIRBUS

2022

2017 Project Conception

2018 Industry Analysis

2019 XML Design & Development

2020 Testing & Evaluation

2021 Implementation Guide

B. Rekencentra nv

amadeus

BOEING

AIRBUS

2017
Project conception

2018
Industry Analysis

2019
XML Design & Development

2020
Testing & Evaluation

2021
Implementation Guide

The 3 Minute Process

AHM565-XML A330-900.xml - Notepad

File Edit Format View Help

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AHM565-XML A330-900.xml - Notepad

File Edit Format View Help

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The 3 Minute Process

Standard
Passenger Weights

Catering

Standard
Baggage Weight

The 3 Minute Process

AHM565-XML A330-900.xml - Notepad

File Edit Format View Help

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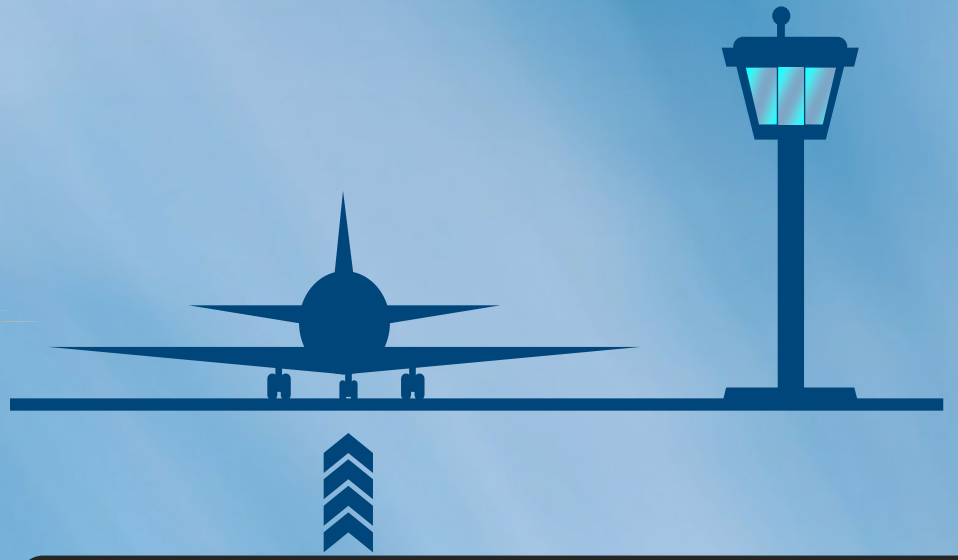

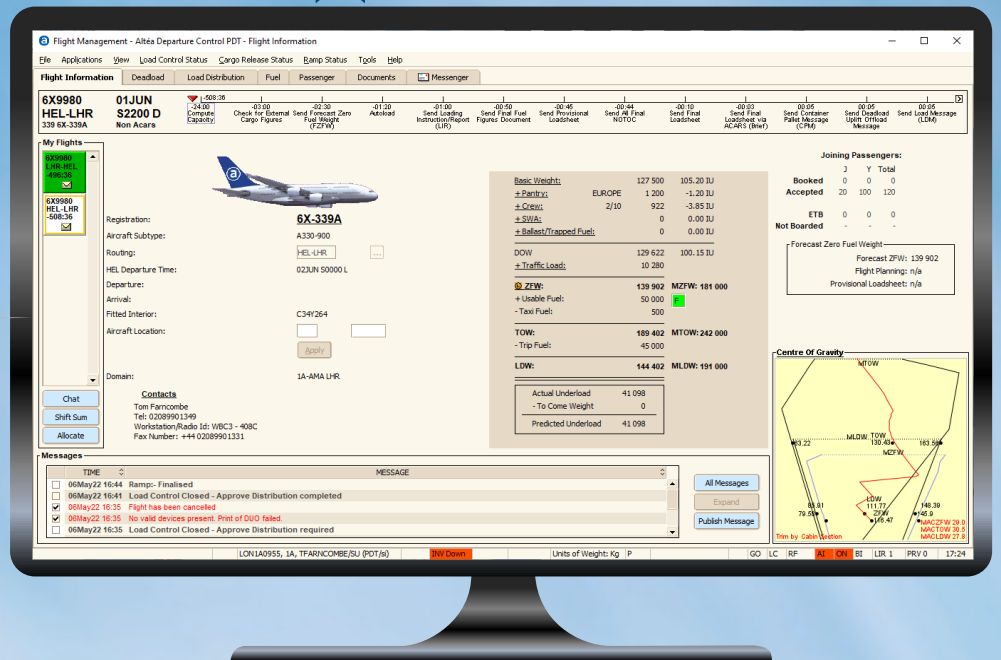

The 3 Minute Process

AHM565-XML A330-900.xml - Notepad

File Edit Format View Help

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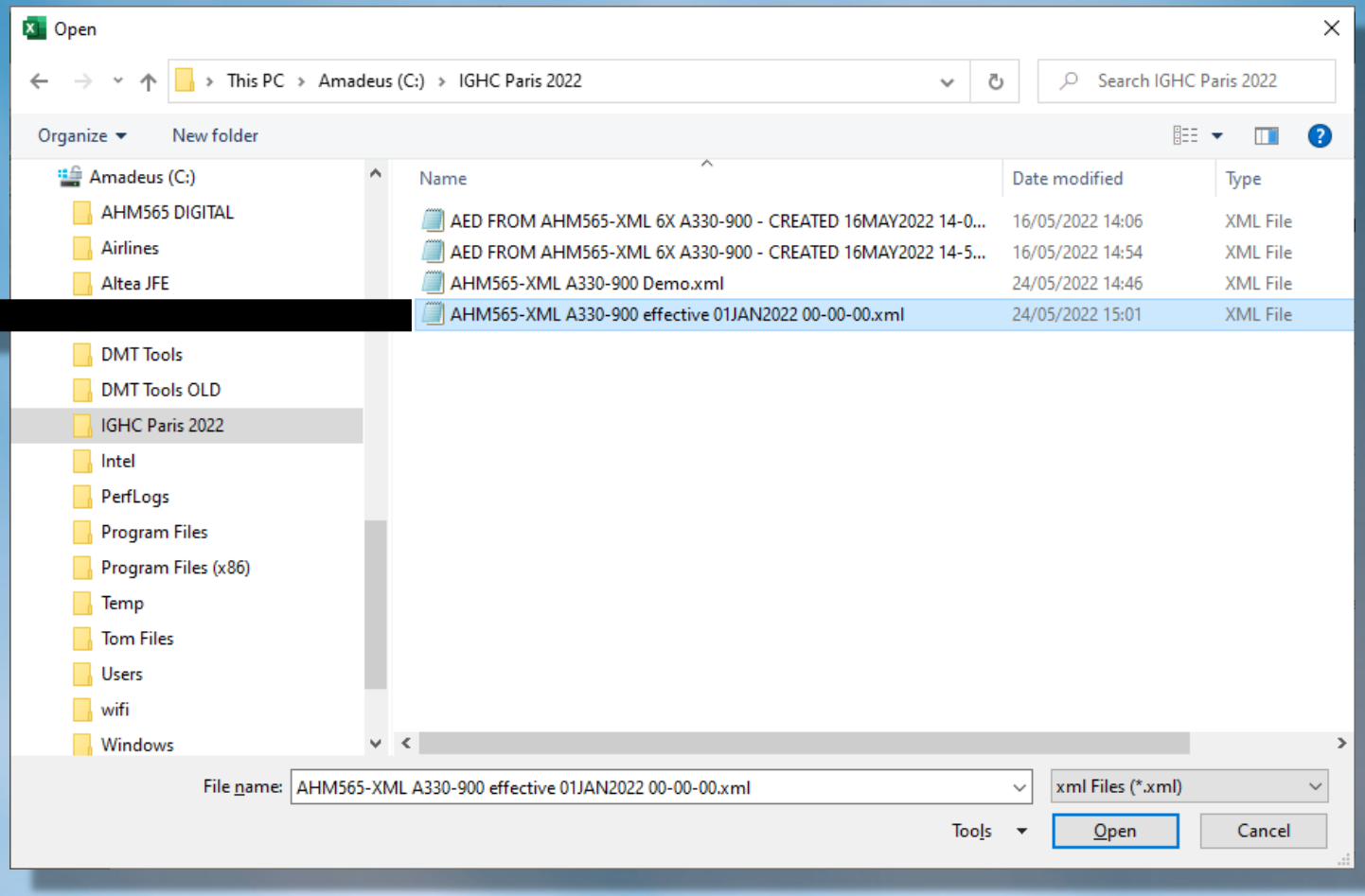

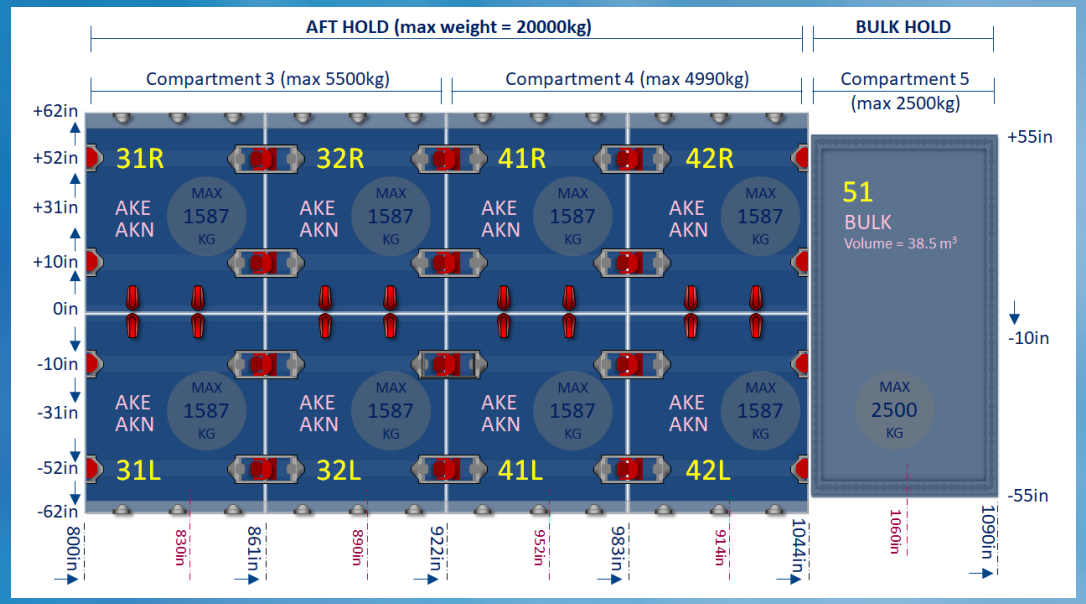

Deck: Lower

```
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BalanceArmCentroidMeasure = 922
BalanceArmForwardMeasure
BulkInd = false
HoldID = AFT
LateralArmCentroidMeasure = 0
LateralArmFromMeasure = -62
LateralArmToMeasure = 62
MaximumWeightMeasure = 20000
NoRuleIsZeroInd = false
```

Hold: AFT

Compartment: 3

```
BalanceArmAftMeasure = 922
BalanceArmCentroidMeasure = 861
BalanceArmForwardMeasure = 800
HoldCompartmentID = 3
LateralArmCentroidMeasure = 0
LateralArmFromMeasure = -62
LateralArmToMeasure = 62
MaximumWeightMeasure = 5500
```

ULD_LoadPosition: 31L

ULD_LoadPosition: 31R

```
BalanceArmAftMeasure = 861
BalanceArmCentroidMeasure = 830
BalanceArmForwardMeasure = 800
LateralArmCentroidMeasure = 31
LateralArmFromMeasure = 62
LateralArmToMeasure = 0
MaximumWeightMeasure = 1587
ULD_LoadPositionID = 31L
WeightUnitIndexValue 0.13244
```

ULD_Compatibility: AKE AKN

```
RestrictedWeightMeasure = 1587
ULD_TypeCode = AKE
```

ULD_LoadPosition: 32L

```
RestrictedWeightMeasure = 1587
ULD_TypeCode = AKE
```

ULD_LoadPosition: 32R

Compartment: 4

```
BalanceArmAftMeasure = 922
BalanceArmCentroidMeasure = 861
BalanceArmForwardMeasure = 800
HoldCompartmentID = 5
LateralArmCentroidMeasure = 0
LateralArmFromMeasure = -62
LateralArmToMeasure = 62
MaximumWeightMeasure = 5500
```

ULD_LoadPosition: 41L

ULD_LoadPosition: 41R

ULD_LoadPosition: 42L

ULD_LoadPosition: 42R

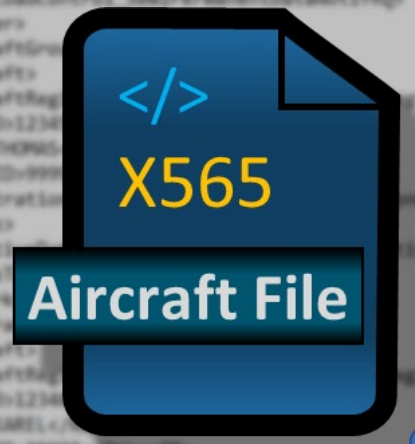
Hold: BULK

```
BalanceArmAftMeasure = 1044
BalanceArmCentroidMeasure = 922
BalanceArmForwardMeasure
BulkInd = true
HoldID = BULK
LateralArmCentroidMeasure = 0
LateralArmFromMeasure = -62
LateralArmToMeasure = 62
MaximumWeightMeasure = 2500
NoRuleIsZeroInd = false
```

Compartment: 5

```
BalanceArmAftMeasure = 1090
BalanceArmCentroidMeasure = 1023
BalanceArmForwardMeasure = 1044
LateralArmCentroidMeasure = -10
LateralArmFromMeasure = -55
LateralArmToMeasure = 55
MaximumWeightMeasure = 25
ULD_LoadPositionID = 51
VolumeMeasure = 38.5
WeightUnitIndexValue = 0.28779
```

ULD_LoadPosition: 51



AutoSave Off AHM565 XML Editor v0.1.xlsm Search Tom FARNCOMBE

File Home Insert Draw Page Layout Formulas Data Tom Review New Tab View Developer Help Share Comments

A2

Menu Validate Datasheets

xHome xReg

Deleting Datasheet Aircraft Group

Open

This PC › Search GHUG NICE 2022

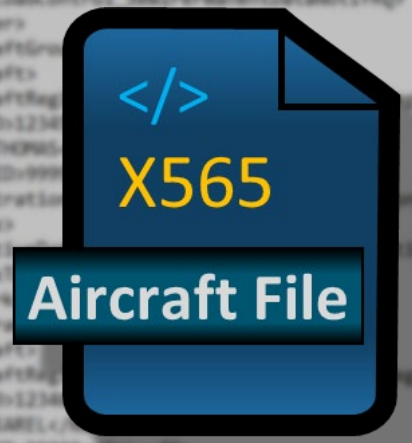
Organize New folder

Quick access
Tom Files
DMT
DBM Exports - Tom Laptop
Downloads
Pictures
AHM565 XML Excel Editor
AHM565 XML Files
00-2004 - Misc
AHM565 XML Implementation Guide
MS Word Files
Tom
Microsoft Excel
OneDrive - Amadeus Workplace
Accepted Data Configurations

Name	Date modified	Type	Size
X565-XML 6X A330-900 effective 01JAN2022 00-00-00.xml	14/11/2022 15:00	XML File	458 KB
X565-XML A330-900 - AIRBUS DATA FILE.xml	12/09/2022 12:20	XML File	457 KB

File name: xml Files (*.xml)

Tools Open Cancel



AutoSave Off | AHM565 XML Editor v0.1.xlsm | Search | Tom FARNCOMBE

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A2

Menu | Insert New Row | Delete Selected Rows | Add Sheet | Delete Sheet | Plot Arm Summary

Aircraft Group

Subtype Name	A330-900	Effective Date	01/01/2022 00:00:00	Remarks	IATA DEMO

Manufacturer	AIRBUS
Aircraft Name	A330-900
IATA Type Code	A330NEO

C Constant	2500		
K Constant	100		
CG Ref Arm	36.3495	Units	METRE
LEMAC	34.532	Units	METRE
LenMAC	7.27	Units	METRE

Length Units	METRE
Liquid Vol Units	LITRE
Volume Units	CUBIC METRE
Weight Units	KG
Area Units	SQUARE METRE
Fuel Den Wt Unit	KG
Fuel Den Vol Unit	LITRE
Moment Wt Units	KG
Moment Len Units	METRE

Master Aircraft List

Aircraft Reg ID	MSN	Name	Other ID	Reg Group ID	Effective Date	Remarks
6X-339A	12345	THOMAS	99999	GROUP 1	01/01/2022 00:00:00	STD CONFIGURATION
6X-339B	12346	KAREL	99999	GROUP 1	01/01/2022 00:00:00	STD CONFIGURATION
6X-339C	12347	TODD	99999	GROUP 1	01/01/2022 00:00:00	STD CONFIGURATION
6X-339D	12348	TREVOR	99999	GROUP 1	01/01/2022 00:00:00	STD CONFIGURATION
6X-339E	12349	MASSIMO	99999	GROUP 1	01/01/2022 00:00:00	STD CONFIGURATION

xHome | Aircraft Group | Aircraft Weights | Balance Output 1 | Cabin Code | Cabin Layout 1 | Cargo Heat 1 | Carrier Contact | Carrier Name | CG Limit 1 | Com

100%

AutoSave Off | X565 XML Editor v0.8.2.4.xlsm | Search | Tom FARNCOMBE

File Home Insert Draw Page Layout Formulas Data Tom Review New Tab View Developer Help | Share | Comments

C58 | 2

Menu | Insert New Row | Delete Selected Rows | Add Sheet | Delete Sheet | Draw Hold | Draw Cabin | Missing Locks: | Insert Record | Delete Record | Insert Rule | Delete Rule | Jump To

Cabin Sections

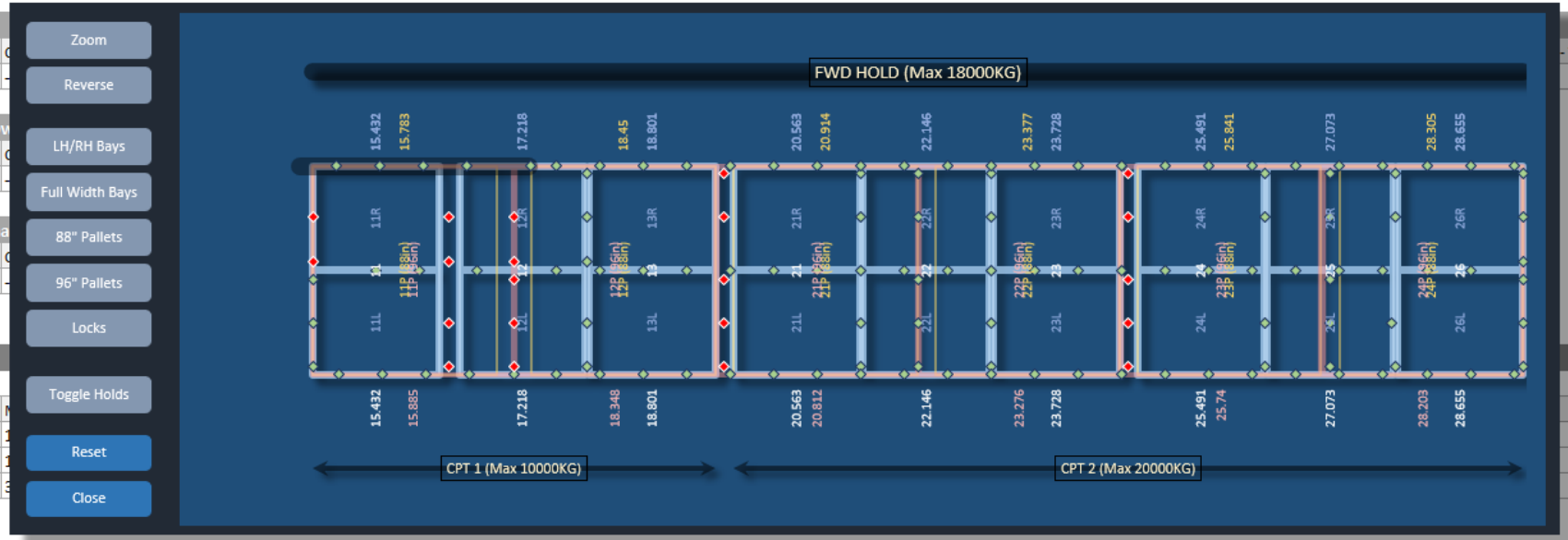
Cab Section ID	C
-	-

Passenger Seat Row

Row Number	C
-	-

Passenger Seat Cha

Row Number	C
-	-



- To	Units	IU Per Wt Unit
	-	-

CARGO HOLDS

Hold	M
FWD	1
AFT	1
BULK	3

IU Per Wt Unit	Lateral Arm-From	Units
-	-1.5875	METRE
-	-1.5875	METRE
-	-1.5875	METRE

HOLD COMPARTMENTS

Hold Cpt ID	Hold	Max Weight	Units	Forward Arm	Units	Aft Arm	Units	Centroid	Units	IU Per Wt Unit	Lateral Arm-From	Units	Lateral Arm - To	Units
1	FWD	10000	KG	14.662	METRE	19.571	METRE	17.1165	METRE	-0.00769	-	-	-	-
2	FWD	20000	KG	19.793	METRE	29.425	METRE	24.609	METRE	-0.0047	-	-	-	-
3	AFT	10000	KG	40.118	METRE	47.2965	METRE	44.9392	METRE	0.00344	-	-	-	-
4	AFT	10000	KG	47.2965	METRE	52.011	METRE	49.6538	METRE	0.00532	-	-	-	-
5	BULK	2000	KG	52.315	METRE	56.354	METRE	53.79	METRE	0.00698	-	-	-	-

COMPARTMENT BAY LOCATIONS

Bay ID	Hold Layout ID	Hold Cpt	Max Weight	Units	Forward Arm	Units	Aft Arm	Units	Centroid	Units	Lateral Arm-From	Units	Lateral Arm - To	Units
11	-	1	3175	KG	14.661	METRE	16.202	METRE	15.432	METRE	-1.59	METRE	1.59	METRE
11L	-	1	1587	KG	14.662	METRE	16.202	METRE	15.432	METRE	-1.59	METRE	0	METRE
11R	-	1	1587	KG	14.662	METRE	16.202	METRE	15.432	METRE	0	METRE	1.59	METRE
11P	-	1	4626	KG	14.662	METRE	16.904	METRE	15.783	METRE	-1.59	METRE	1.59	METRE
11P	-	1	5102	KG	14.662	METRE	17.107	METRE	15.885	METRE	-1.59	METRE	1.59	METRE
12	-	1	1587	KG	16.448	METRE	17.988	METRE	17.218	METRE	-1.59	METRE	1.59	METRE
12L	-	1	1587	KG	16.448	METRE	17.988	METRE	17.218	METRE	-1.59	METRE	0	METRE
12R	-	1	1587	KG	16.448	METRE	17.988	METRE	17.218	METRE	0	METRE	1.59	METRE

Carrier Contact | Carrier Name | CG Limit 1 | CG Limit 2 | Combined Load 1 | Combined Load 2 | Crew Bag Weights | Crew Distribution 1 | Cumulative Load 1 | Curtailments 1 | Deck 1 | Deck 2 | Deck 3 ...

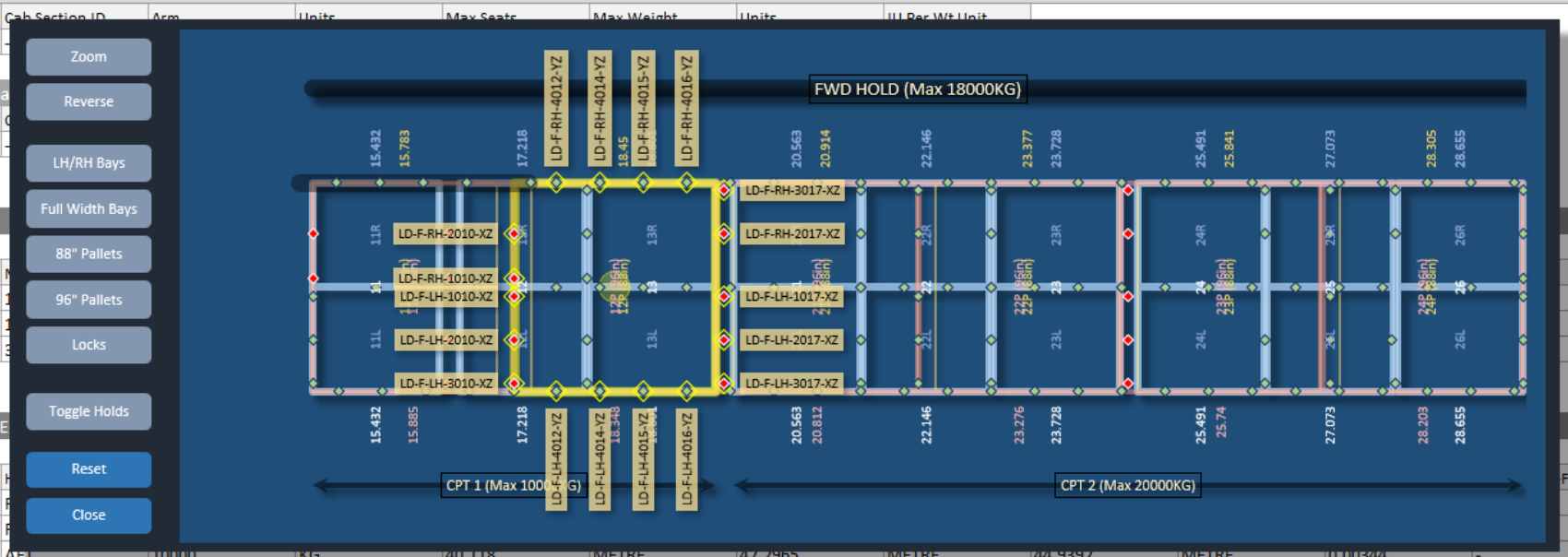
100%

AutoSave Off | X565 XML Editor v0.8.2.4.xlsm | Search | Tom FARNCOMBE

File Home Insert Draw Page Layout Formulas Data Tom Review New Tab View Developer Help | Share | Comments

C74 | 12P

Menu | Insert New Row | Delete Selected Rows | Add Sheet | Delete Sheet | Draw Hold | Draw Cabin | Missing Locks: | Insert Record | Delete Record | Insert Rule | Delete Rule | Jump To



Row Number | Cab Section ID | Arm | Units | Max Seats | Max Weight | Units | IU Per Wt Unit

Passenger Seat Cha

Row Number

CARGO HOLDS

Hold										IU Per Wt Unit	Lateral Arm-From	Units
FWD	1									-	-1.5875	METRE
AFT	1									-	-1.5875	METRE
BULK	3									-	-1.5875	METRE

HOLD COMPARTME

Hold Cpt ID	H									From	Units	Lateral Arm - To	Units
1	F									-	-	-	
2	F									-	-	-	
3	AFT	10000	KG	40.118	METRE	47.2965	METRE	44.9392	METRE	0.00344	-	-	-
4	AFT	10000	KG	47.2965	METRE	52.011	METRE	49.6538	METRE	0.00532	-	-	-
5	BULK	2000	KG	52.315	METRE	56.354	METRE	53.79	METRE	0.00698	-	-	-

COMPARTMENT BAY LOCATIONS

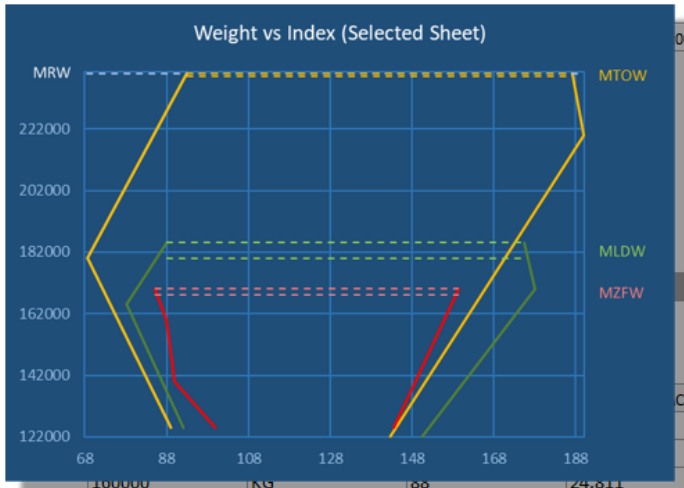
Bay ID	Hold Layout ID	Hold Cpt	Max Weight	Units	Forward Arm	Units	Aft Arm	Units	Centroid	Units	Lateral Arm-From	Units	Lateral Arm - To	Units
11	-	1	3175	KG	14.661	METRE	16.202	METRE	15.432	METRE	-1.59	METRE	1.59	METRE
11L	-	1	1587	KG	14.662	METRE	16.202	METRE	15.432	METRE	-1.59	METRE	0	METRE
11R	-	1	1587	KG	14.662	METRE	16.202	METRE	15.432	METRE	0	METRE	1.59	METRE
11P	-	1	4626	KG	14.662	METRE	16.904	METRE	15.783	METRE	-1.59	METRE	1.59	METRE
11P	-	1	5102	KG	14.662	METRE	17.107	METRE	15.885	METRE	-1.59	METRE	1.59	METRE
12	-	1	1587	KG	16.448	METRE	17.988	METRE	17.218	METRE	-1.59	METRE	1.59	METRE
12L	-	1	1587	KG	16.448	METRE	17.988	METRE	17.218	METRE	-1.59	METRE	0	METRE
12R	-	1	1587	KG	16.448	METRE	17.988	METRE	17.218	METRE	0	METRE	1.59	METRE
12P	-	1	5102	KG	17.126	METRE	19.571	METRE	18.348	METRE	-1.59	METRE	1.59	METRE
12P	-	1	4626	KG	17.329	METRE	19.571	METRE	18.450	METRE	-1.59	METRE	1.59	METRE
13	-	1	1587	KG	18.030	METRE	19.571	METRE	18.801	METRE	-1.59	METRE	1.59	METRE
13L	-	1	1587	KG	18.030	METRE	19.571	METRE	18.801	METRE	-1.59	METRE	0	METRE
13R	-	1	1587	KG	18.030	METRE	19.571	METRE	18.801	METRE	0	METRE	1.59	METRE
21P	-	2	5102	KG	19.590	METRE	22.034	METRE	20.812	METRE	-1.59	METRE	1.59	METRE

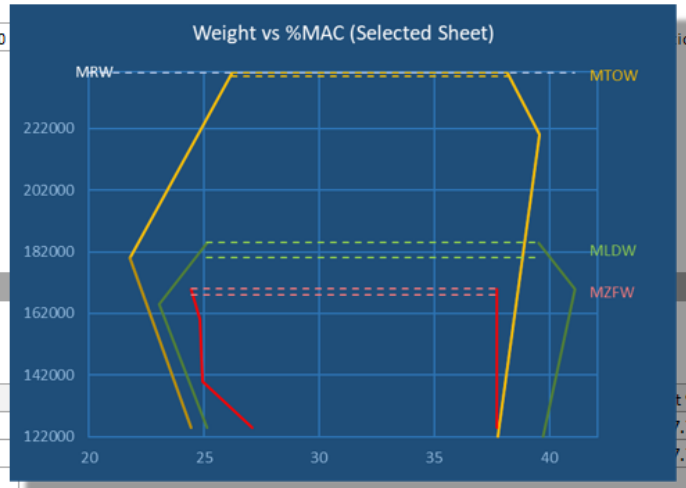
Carrier Contact | Carrier Name | CG Limit 1 | CG Limit 2 | Combined Load 1 | Combined Load 2 | Crew Bag Weights | Crew Distribution 1 | Cumulative Load 1 | Curtailments 1 | Deck 1 | Deck 2 | Deck 3

100%

XX-AAA
XX-BBB
XX-CCC

CG Limit





170000	KG	85.2	24.443

TAKE OFF LIMITS

FWD

Weight	Units	Forward Index	Forward %MAC
125000	KG	89.1	24.439
180000	KG	68.6	21.779
240000	KG	93	26.208

AFT

Weight	Units	Aft Index	Aft %MAC
122000	KG	142.6	37.743
220000	KG	190	39.57
240000	KG	187.2	38.175

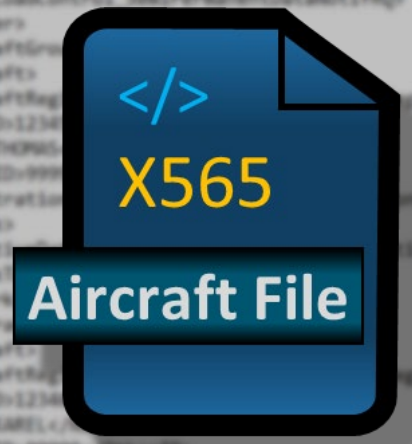
LANDING LIMITS

FWD

Weight	Units	Forward Index	Forward %MAC
125000	KG	92	25.146
165000	KG	78.2	23.069
185000	KG	88	25.12

AFT

Weight	Units	Aft Index	Aft %MAC
122000	KG	150.5	39.718
170000	KG	178.1	41.104
185000	KG	175.5	39.54



AutoSave Off | AHM565 XML Editor v0.1.xlsm | Search | Tom FARNCOMBE

File Home Insert Draw Page Layout Formulas Data Tom Review New Tab View Developer Help | Share | Comments

6X-339A

Menu | Insert New Row | Delete Selected Rows | Add Sheet | Delete Sheet | Show Aircraft Registrations

Pantry WT-IU

Pantry Code
EUROPE
USA
ASIA
AUSTRALASIA

Fuel Distribution 3

Save As

This PC › Amadeus (C:) › GHUG NICE 2022 | Search GHUG NICE 2022

Organize | New folder

Desktop
Documents
Microsoft Teams Chat Files
New Instructor PPTs
Notebooks
Pictures
Recordings
This PC
3D Objects
Desktop
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Downloads
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Pictures
Videos
Amadeus (C:)

Name	Date modified	Type	Size
X565-XML A330-900 - AIRBUS DATA FILE.xml	12/09/2022 12:20	XML File	457 KB

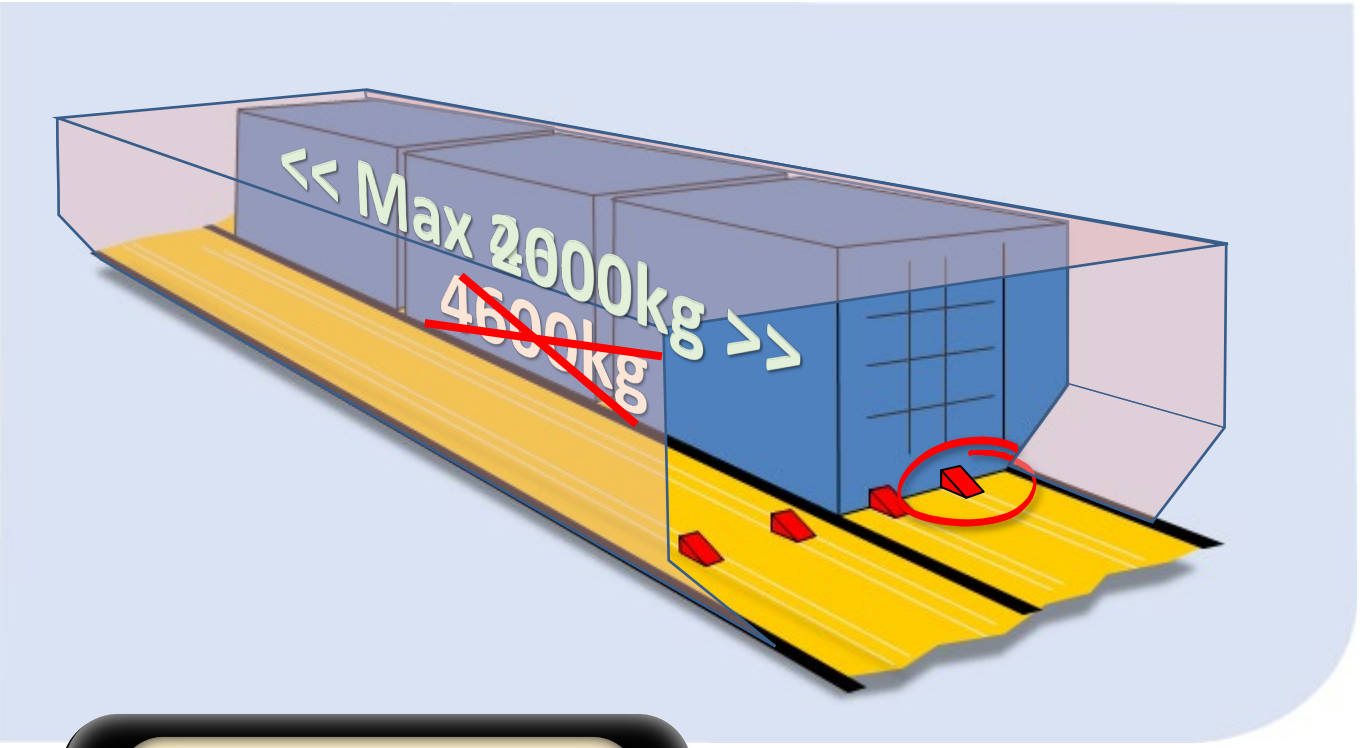
File name: X565-XML A330-900 effective 01JAN2022 00-00-00.xml

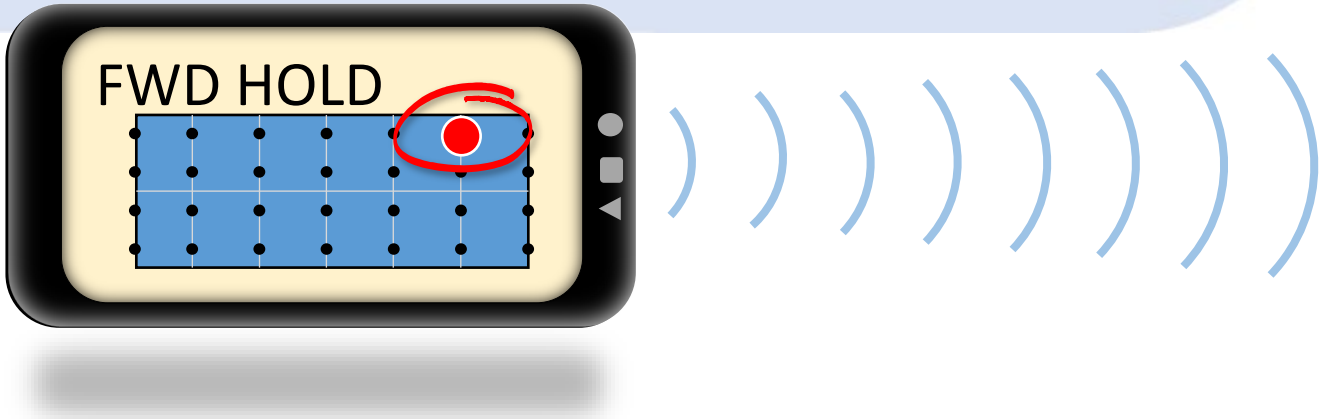
Save as type: XML Files (*.xml)

Authors: Tom FARNCOMBE Tags: Add a tag Title: Add a title Subject: Specify the subject

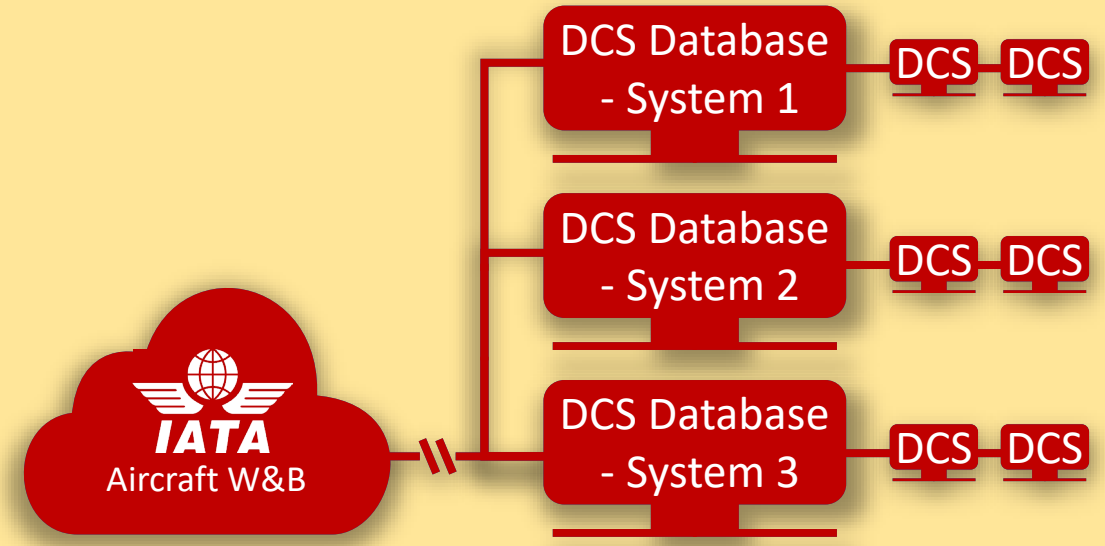
Hide Folders | Tools | Save | Cancel

Inoperative Locks





> **All** Locks Operative = 4600KG
> **ONE** Lock Inoperative = 2000KG
> **TWO** Locks Inoperative = 0KG



Electronic Flightbag

Manage aircraft transfers

Load Control

Airline A

DCS

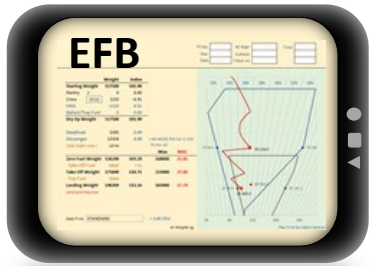
DCS

DCS

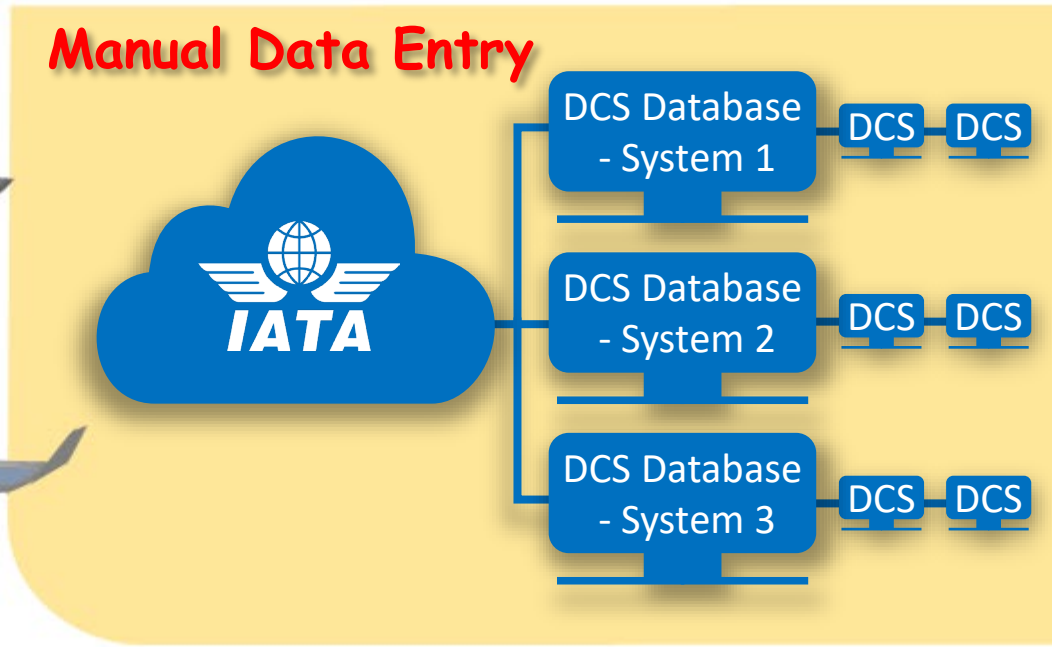
DCS Database

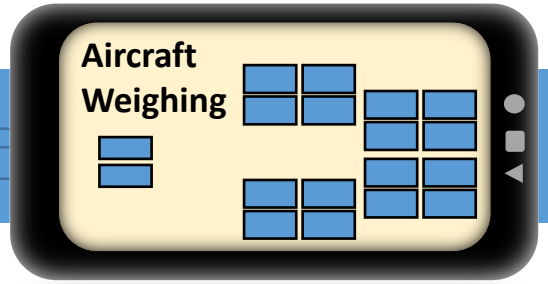
IATA
Aircraft W&B

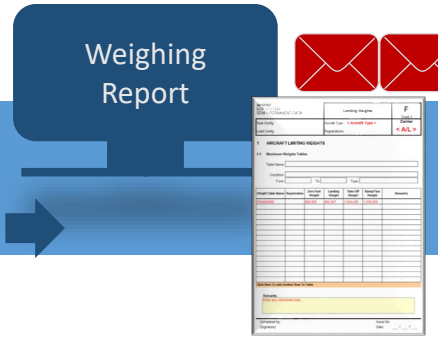
Airline B



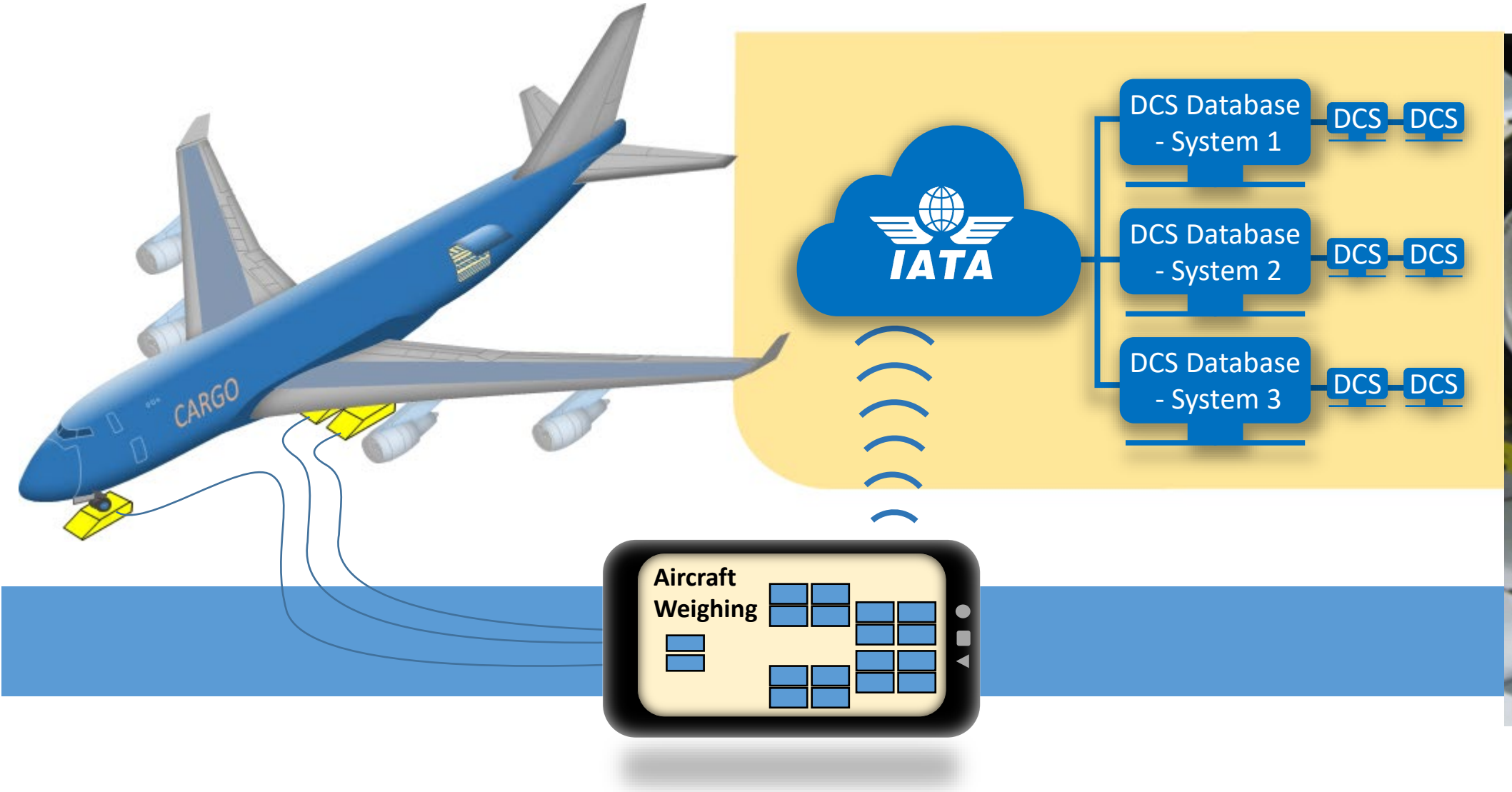
Aircraft Weighing





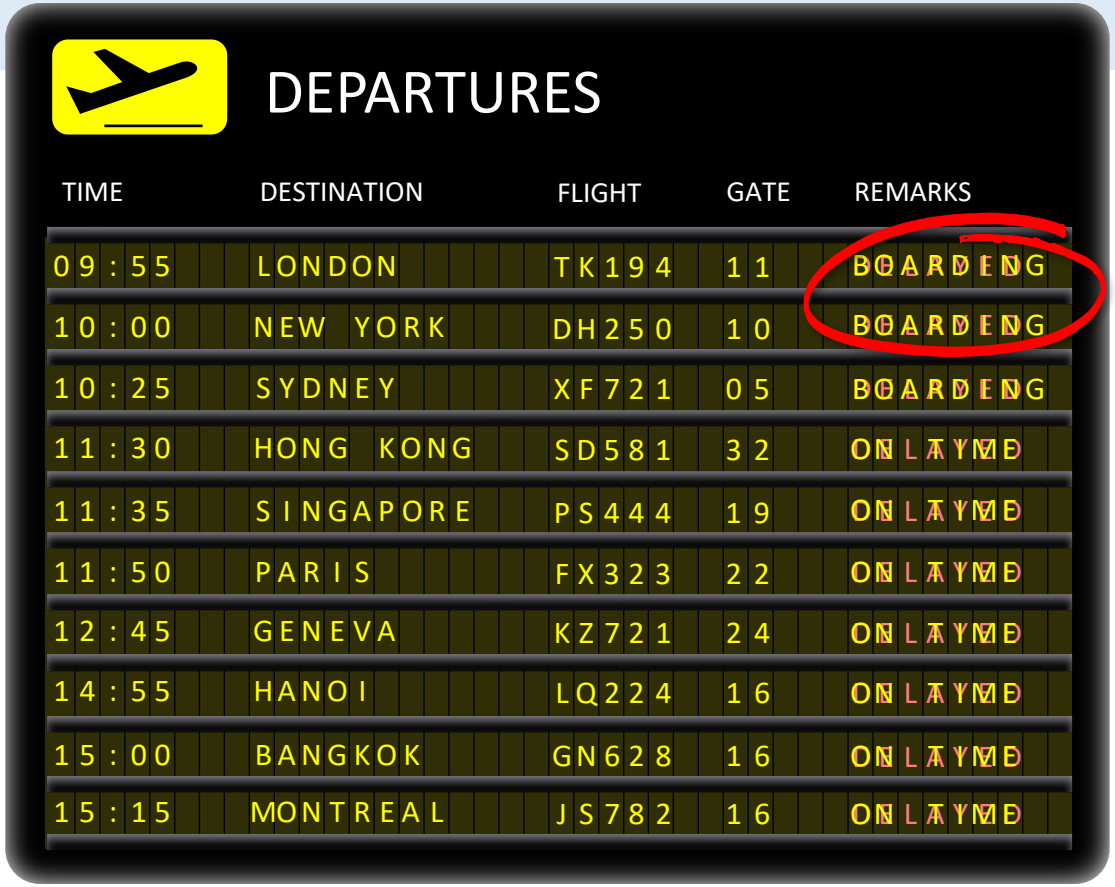


Aircraft Weighing



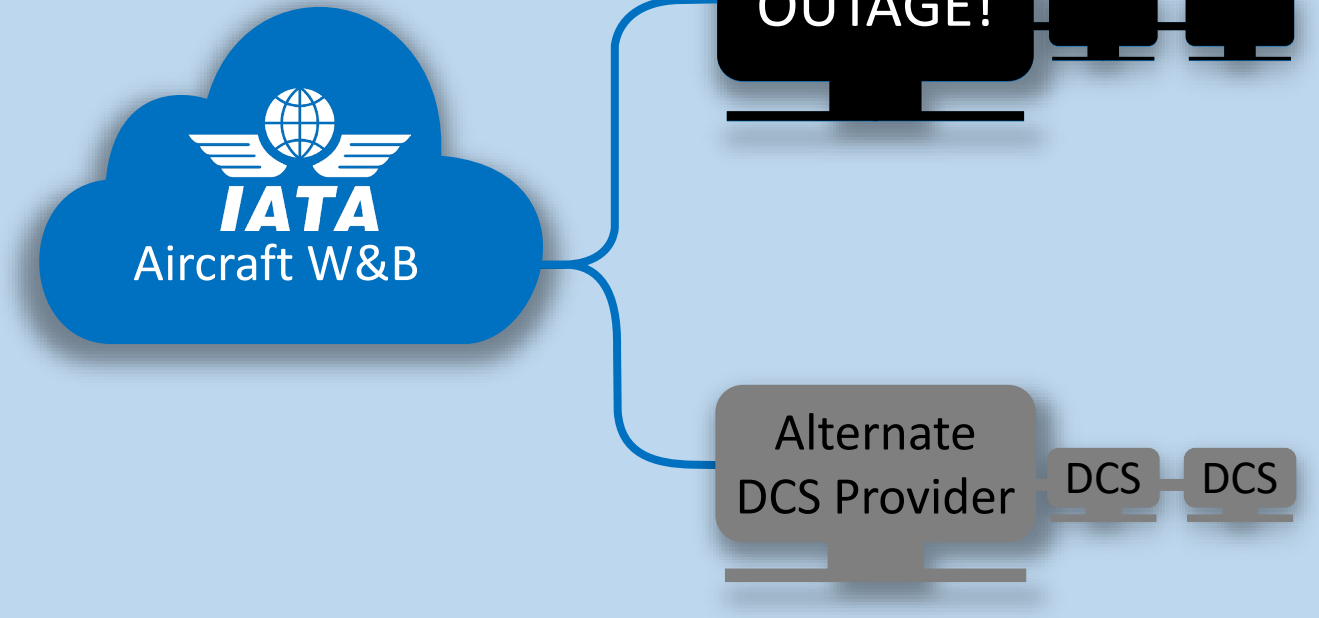
Ground Handling

An **UNPREDICTABLE** business



often a challenge to get DCS up and running at Short Notice

Disaster Recovery



PEGASUS

Congratulations!

The first airline to publish data in X565 Format

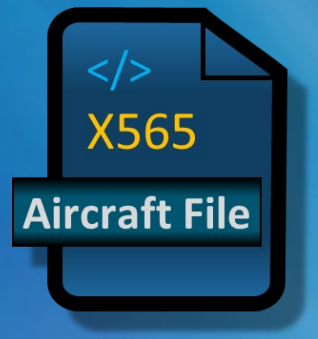
< Airbus A320-214 >

Lufthansa

"Instead of error-prone typing by hand, a lot of effort and money can be saved by serving digitized data. Above all, we can eliminate typing errors and thereby further increase flight safety – this is why the Lufthansa Group strongly supports the initiative for X565 and will make the corresponding requests for all aircraft orders"

Fredy Wehrli

Regional IT Leader Weight & Balance
Lufthansa Group



Airport Handling Manual (AHM)

X565 Implementation Guidelines

For developers creating (publishing) or consuming X565 Data

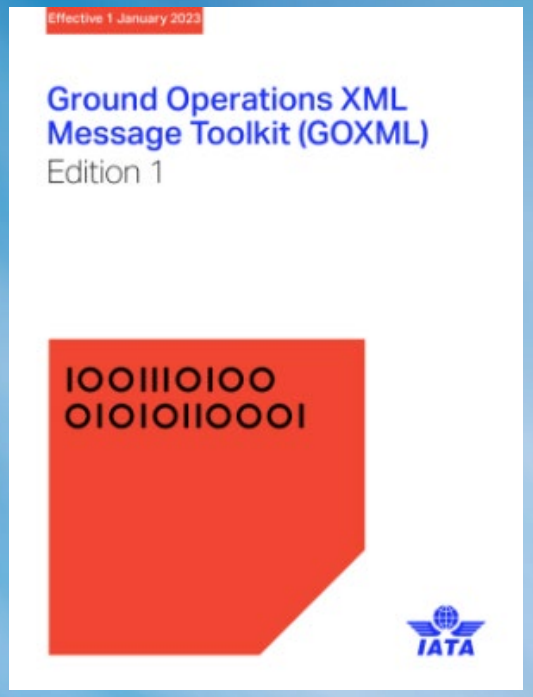
X565 Editor User Guide

For Aircraft Manufacturers, Airline Weights Engineers and DCS Specialists

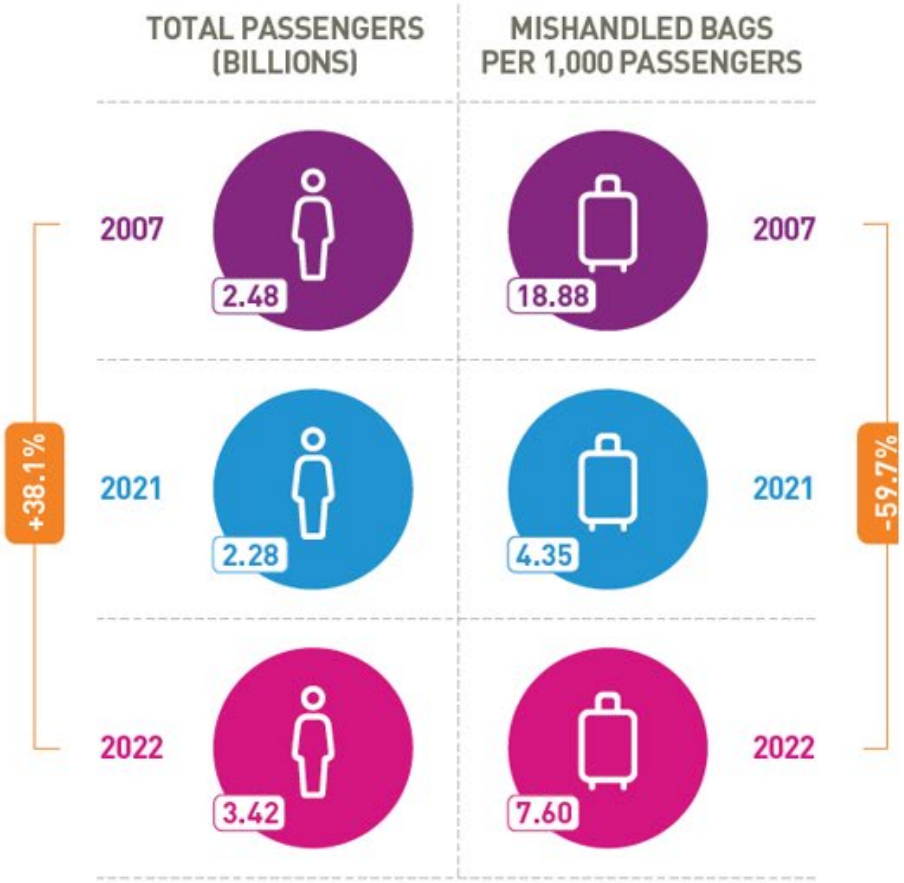
X565 Editor Training Course

groundops@iata.org

What Next ?



IATA Global baggage priorities



BAGGAGE MISHANDLING

Baggage Claims and Disruptions

Mishandling reduced from 18.9 (in 2007) to 7.6 bags (in 2022) per 1000 pax

Airlines pay more than USD 2 billion annually for claim settlement and baggage repatriation

Various initiatives launched and contributed to the reduction in baggage mishandling

- R753
- Modernization

Ongoing efforts to reduce baggage disruption further

- Modern baggage messaging (robust tech)
- Product offer and flexibility (UNAR, MAR)
- Data for a more predictable operation

Passengers expect to get through the airport **more quickly than ever**

Ideal time spent at the airport

Less than 30min

for 74% of the passengers with a carry-on bag only

Versus 2022 **Up by 20pp**

Less than 45min

for 80% of the passengers with a carry-on bag and checked-in bag

Up by 15pp

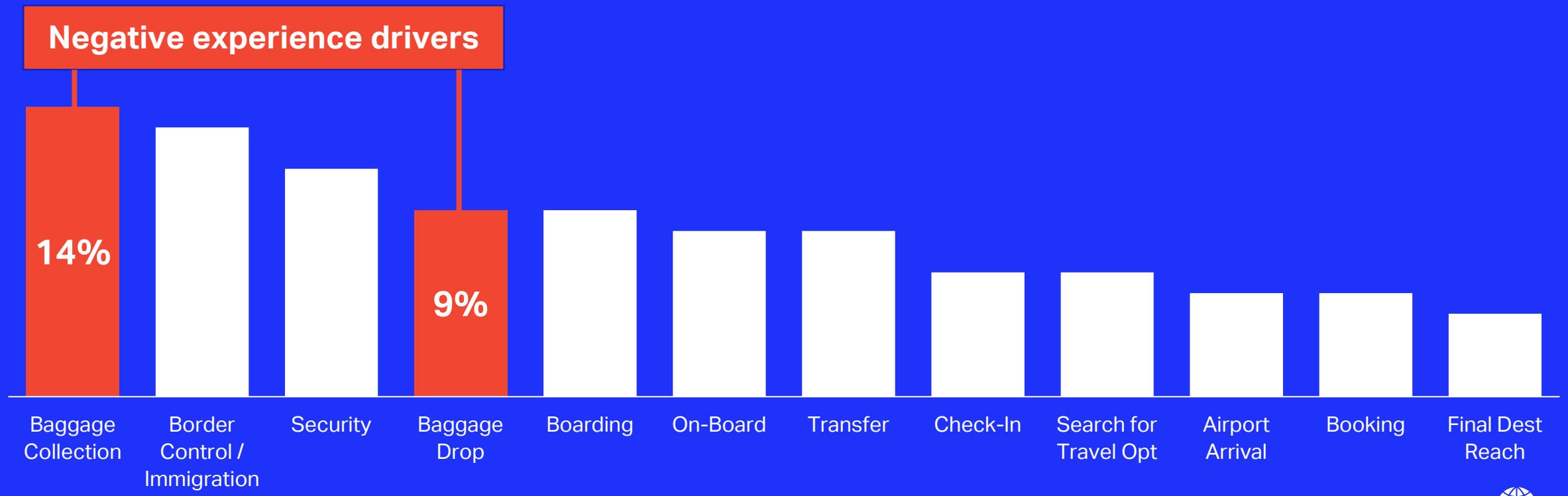
Less than 1h

for 93% of the passengers with mobility aid or special assistance

Up by 11pp

Improvements for Baggage and related services, but still a major pain point

2023 Dissatisfied touchpoint ranked by the largest %



Passengers in need for more flexibility and control in the baggage process

67%

would be interested in home pick-up and delivery

39%

said that their connection experience would be improved if they didn't have to pick up their baggage and recheck it, up from 16% in 2022

Tracking is a key enabler for positive experience

57%

of travelers have used or want to use electronic bag tags

59%

said the ability to track their baggage real time would definitely increase their confidence in travelling with check-in bags

87%

would be willing to check a bag in if they could track it

Real time tracking & fast retrieval and delivery during mishandling have bigger impact on passenger confidence and satisfaction

Reso753 Survey Result

267 applicable member airlines

Airline Reso753 implantation status

Reso753 implementation scale – hub and/or network

4 key tracking points implemented – acceptance, load, transfer, and arrival

362 Applicable airports – Maga, major, large, and medium airports

4 key tracking points implementation data for different airport types

Main tracking technologies e.g. Optical Barcode Scanning, implementation status

Size categories:

<1million =small

1–5m = small/medium

5–15m = medium

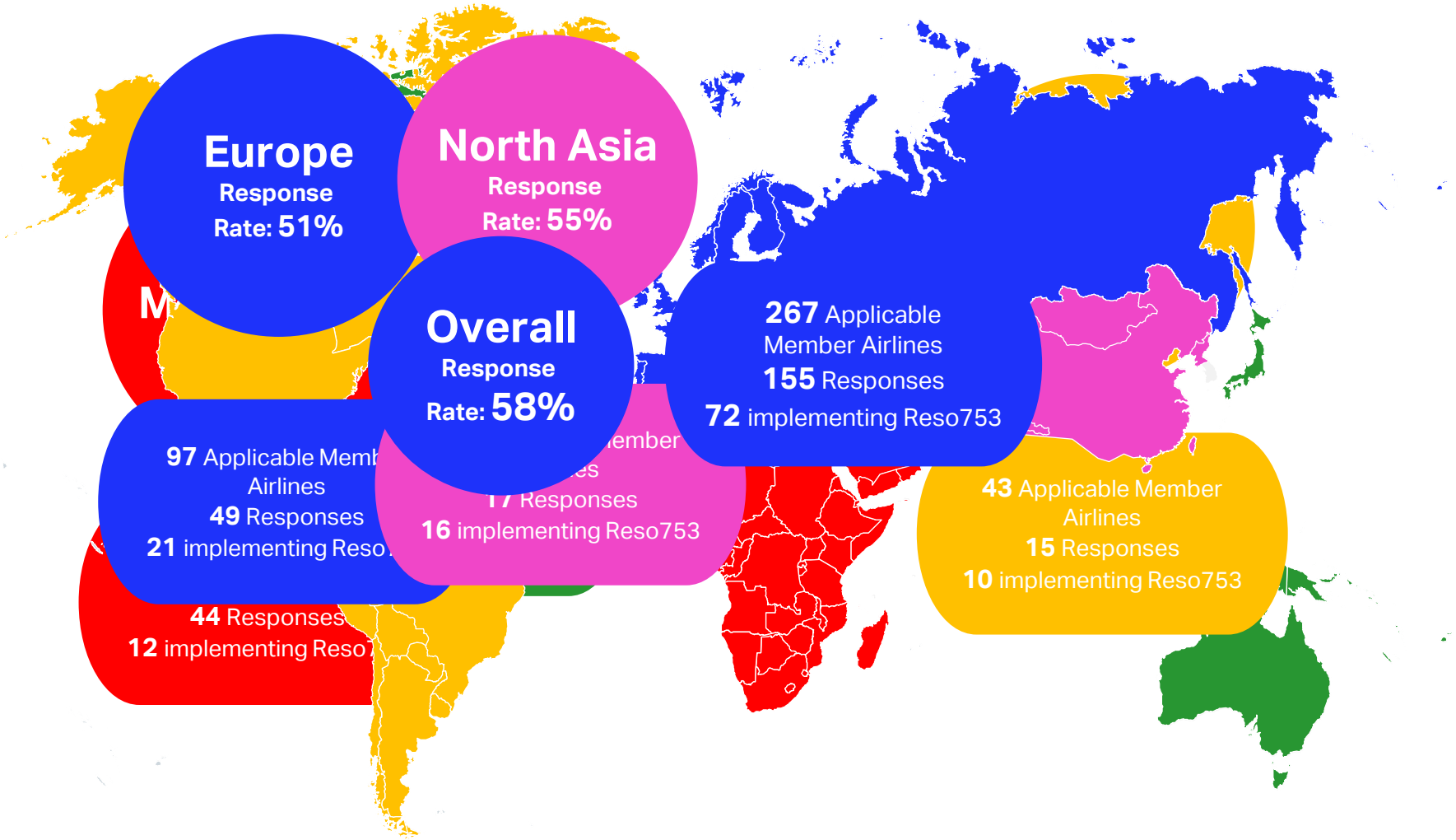
15–25m = large

25–40m = major

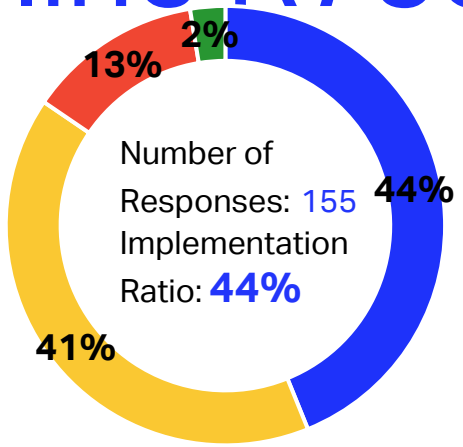
>40million = mega

Data collected from March 2023 till February 2024

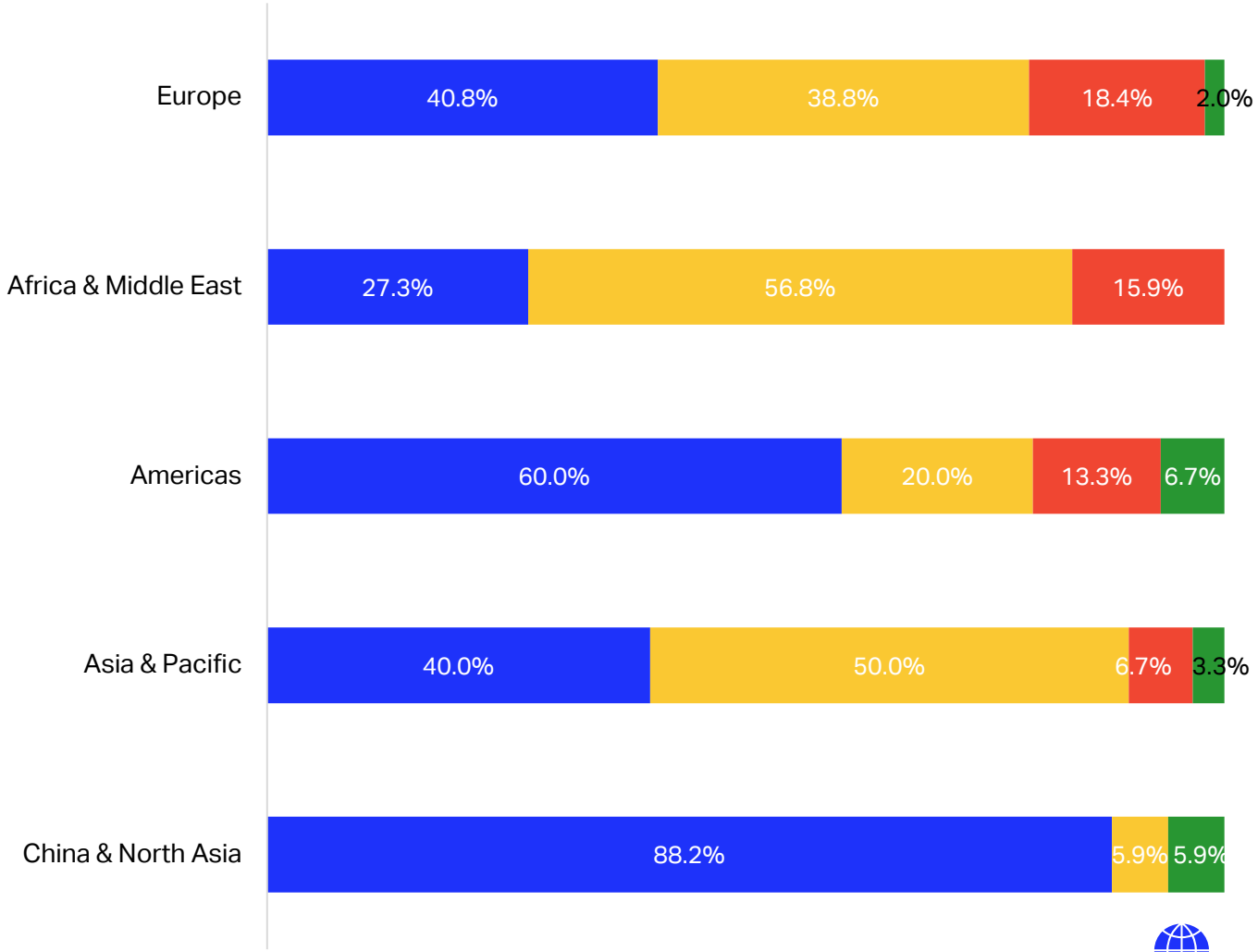
R753 Airline Response



Airline R753 Implementation Status



	Implementing Reso 753	Not yet Implemented but considering	No plan at all to implement	Other
Overall	**68**	**63**	**20**	**4**
Europe	**20**	**19**	**9**	**1**
Afi & MENA	**12**	**25**	**7**	**0**
Americas	**9**	**3**	**2**	**1**
Asia Pacific	**12**	**15**	**2**	**1**
North Asia	**15**	**1**	**0**	**1**



Note: Out of 155 Responses

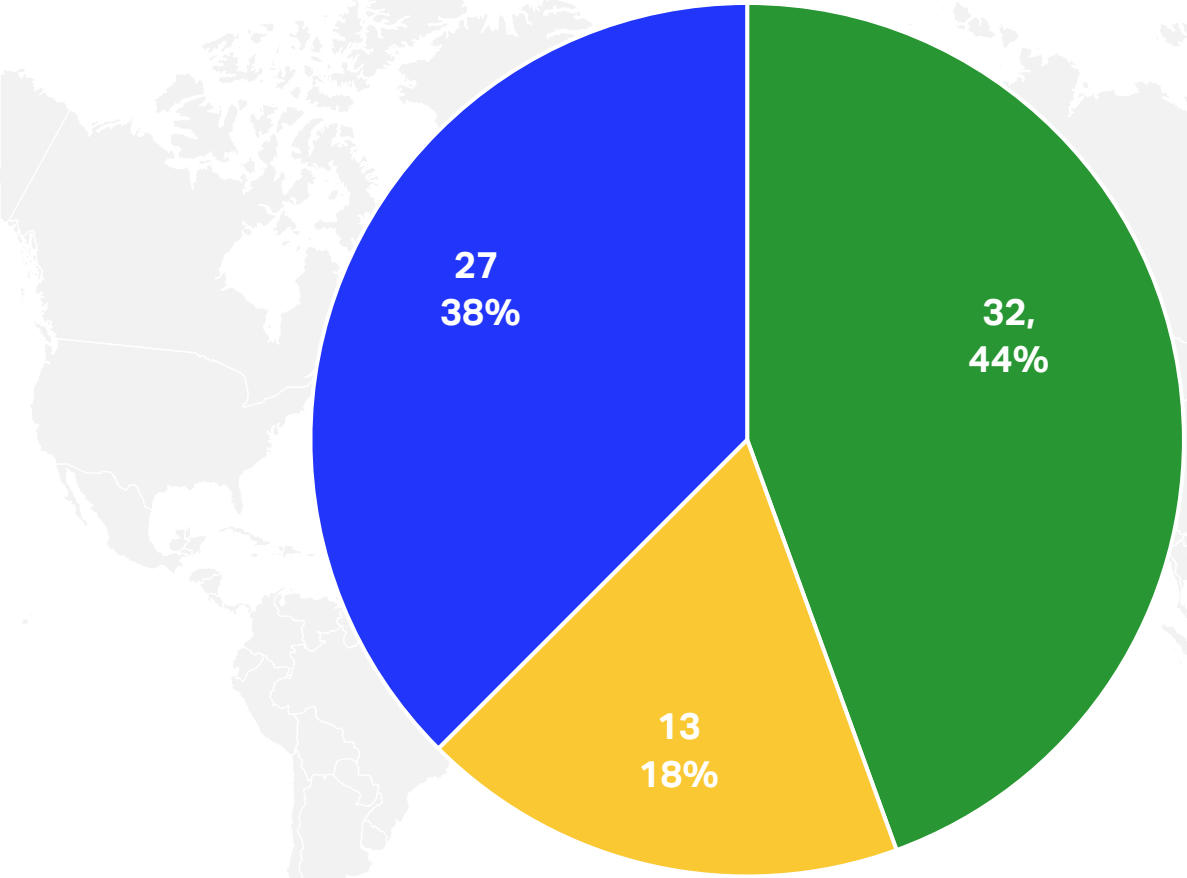
R753 Implementation status at hub and/or network

	Compliant at 1 hub	Compliant at all hubs	Compliant at hubs and network
AFI & MENA	6 50%	1 8%	5 42%
ASPAC	2 15%	2 15%	9 69%
EUROPE	6 29%	5 24%	10 48%
AMERICAS	1 10%	3 30%	6 60%
North Asia	12 75%	2 13%	2 13%

Compliant at hubs and network 32

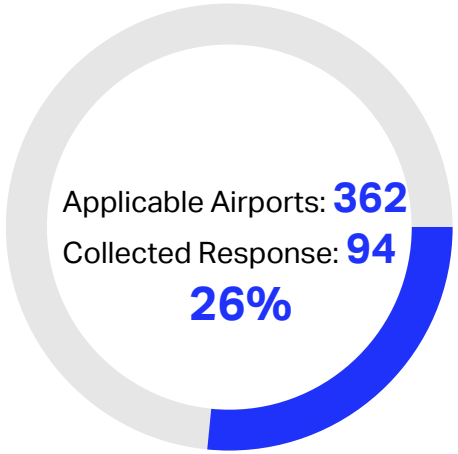
Compliant at all hubs 13

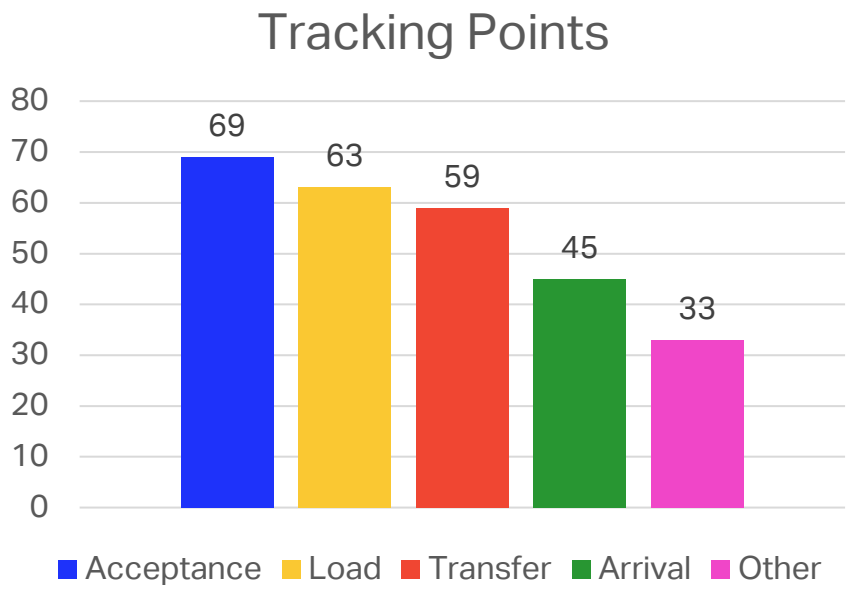
Compliant at one hub 27



Note: Out of 72 Airlines responded with implementing Reso 753 (or other)

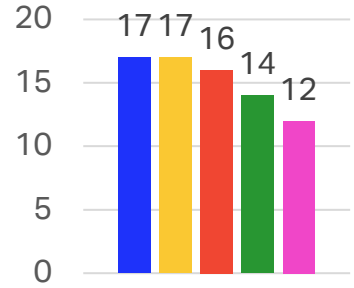
Airport Responses to Reso753





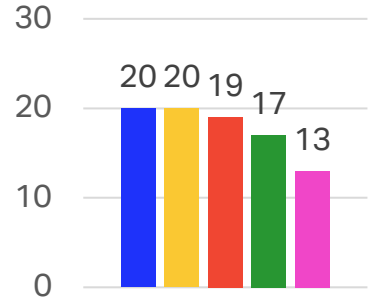
Mega Airport

Number of Airports	57
Number of Response	24
Response Ratio	42%
Capable of Tracking	18
Tracking Capability Ratio	75%



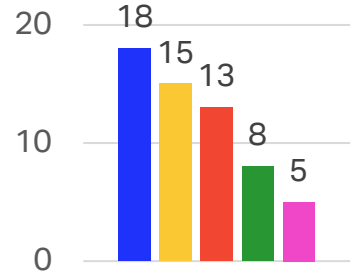
Major Airport

Number of Airports	45
Number of Response	25
Response Ratio	56%
Capable of Tracking	21
Tracking Capability Ratio	84%



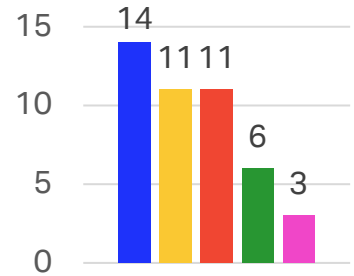
Large Airports

Number of Airports	64
Number of Response	23
Response Ratio	34%
Capable of Tracking	18
Tracking Capability Ratio	82%

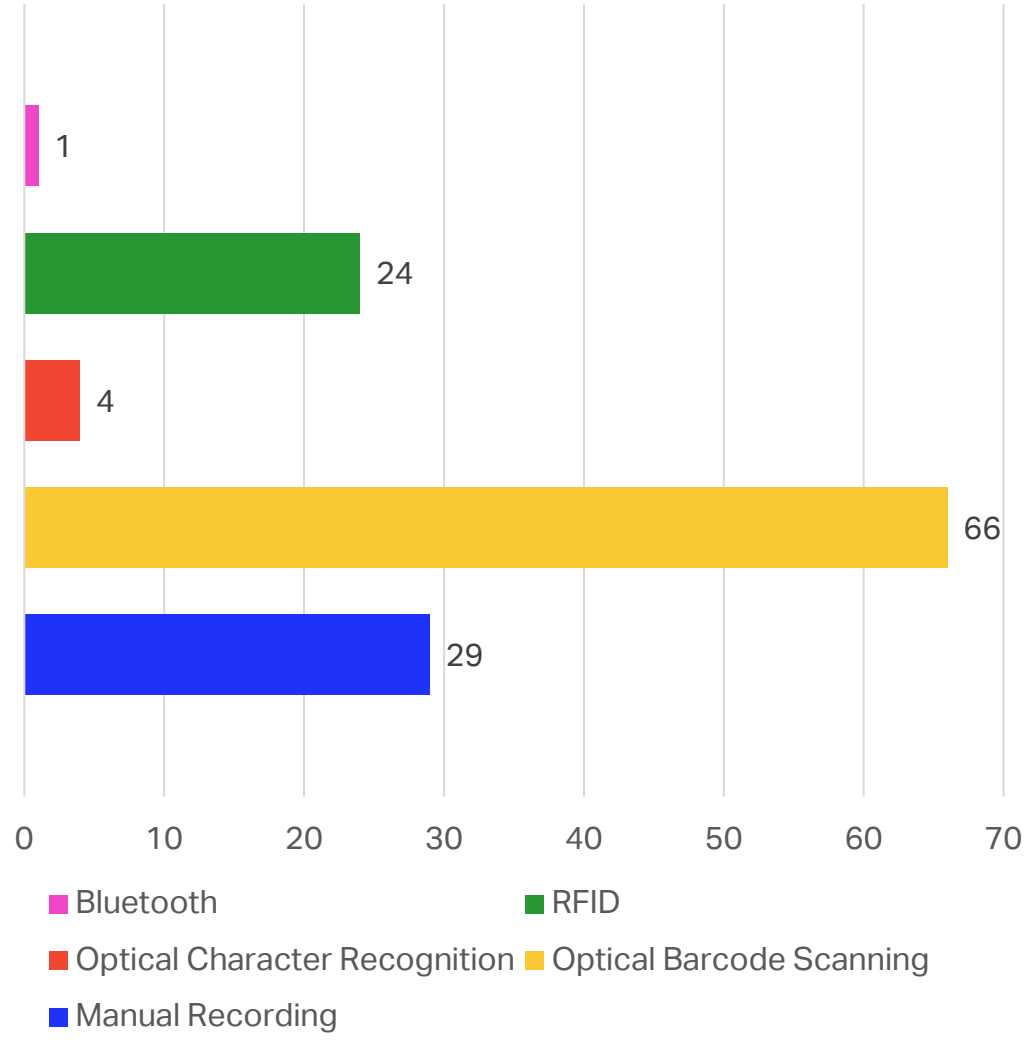


Medium Airports

Number of Airports	196
Number of Response	23
Response Ratio	12%
Capable of Tracking	14
Tracking Capability Ratio	61%



Baggage tracking Infrastructure by technology type at airports



Mega Airports

Manual Recording	Optical Barcode Scanning	Optical Character Recognition	RFID	Bluetooth
6	17	1	12	0

Major Airports

Manual Recording	Optical Barcode Scanning	Optical Character Recognition	RFID	Bluetooth
1	20	3	8	1

Large Airports

Manual Recording	Optical Barcode Scanning	Optical Character Recognition	RFID	Bluetooth
10	17	0	4	0

Medium Airports

Manual Recording	Optical Barcode Scanning	Optical Character Recognition	RFID	Bluetooth
2	12	0	0	0

246 Responses Collected Till 1/29/2024

Note: multiple technologies may be compliant per airport

Global Baggage Priorities

- Automation/Tracking
- Modern Baggage Messaging
- Off-airport operations

Benefits: Modern Baggage Messaging (MBM)

Lower messaging cost

- Access to larger scaled communities

Lower mishandling cost

- Strong data content – AIDM semantics
- Well defined data structure
- Resilient communication network

Future proof

- New content easily introduced
- Forward compatible
- Message format adaptable

More secure

- Embedded digital credentials

MBM vs Teletype

Impacts of Failure

- e.g. Impacts to Regions of World.

Integration Challenges

- e.g. Proprietary Interconnects, private networks

Day To Day Data Loss

- Lack of delivery assurance
- e.g. no BSM means Misconnect Bags!

Peer To Peer

- Actors Do not Effect All Other Actors.

100% Standards Based

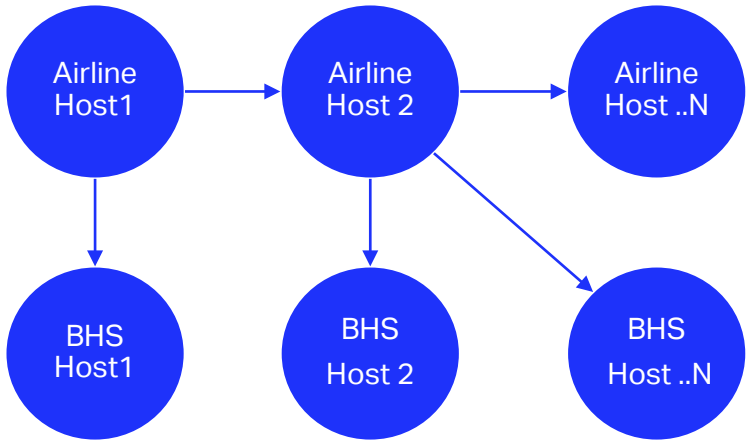
- AMQP or MQTT Protocol is ISO Standard
- Off The Shelf Plug & play
- Wider choice of networking options

Monitored subscription

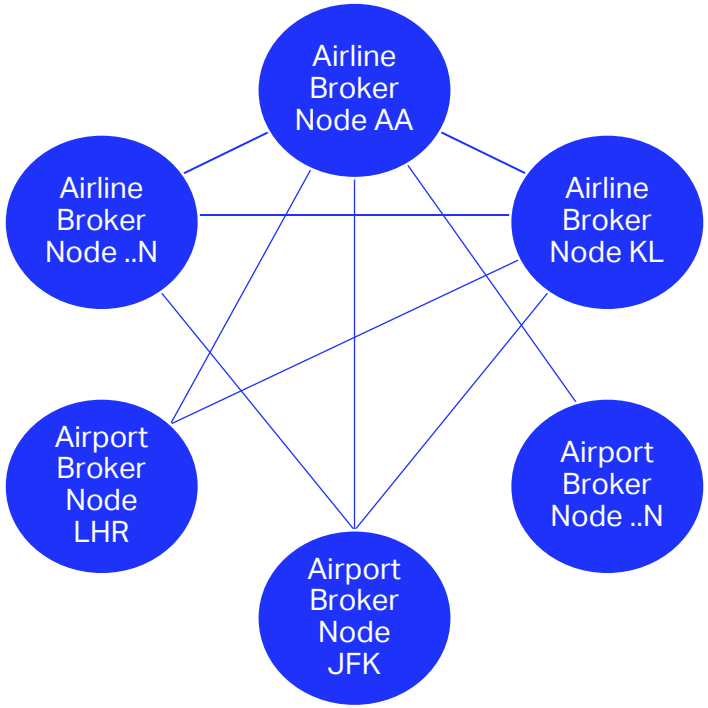
- Same reliability in exchange as you expect in you messaging app

BIX - Communications

Legacy is based on Push



MBM is based on Publish/Subscribe



Baggage Tag

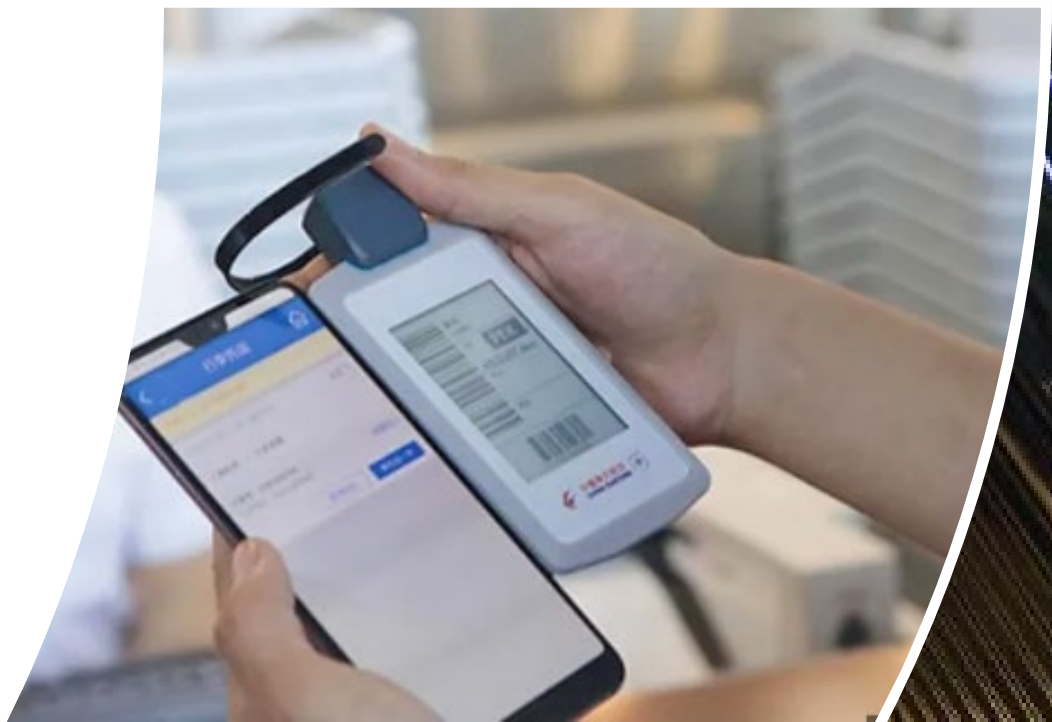
Tag must respect criteria of IATA resolution.

All IATA Airlines has to respect the standard

Electronic Bag Tag (EBT)

Recommended Practice Electronic Bag Tag

Airlines already rolled out



8 August 2024


Bluetooth LE • Ultra Wideband • AirTag • Designed by Apple in California • Assembled in China • Bluetooth LE • Ultra Wideband • AirTag • Designed by Apple in California • Assembled in China •

AirTag


LHR
PNR123

Questions

Thank you!

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We would love to hear from you

Survey on IATA-ICAO Ground Operations Workshop

Or click on this link: https://forms.office.com/e/vYtifFtMbc

See you in May 2025 at the