

# **ICAO ASI PG-6 Meeting**

## **Global Aviation Data Management (GADM )**

### **Aircraft Ground Damage**

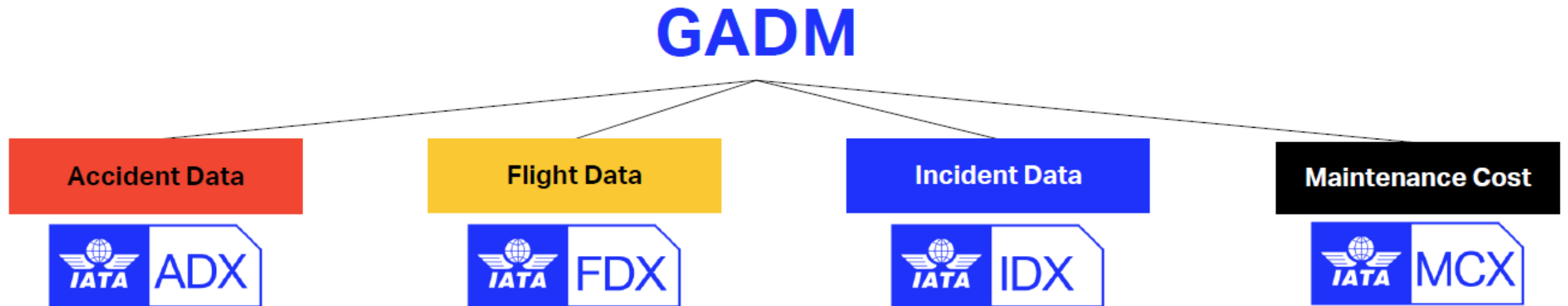
**26-29 May 2024, Muscat-Oman**

**Jehad Faqir**  
**Head of Regional Safety Africa & Middle East**  
**IATA**



# Global Aviation Data Management

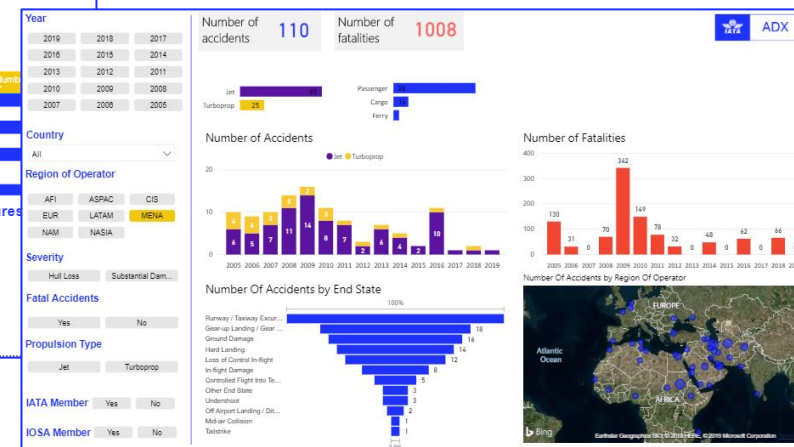
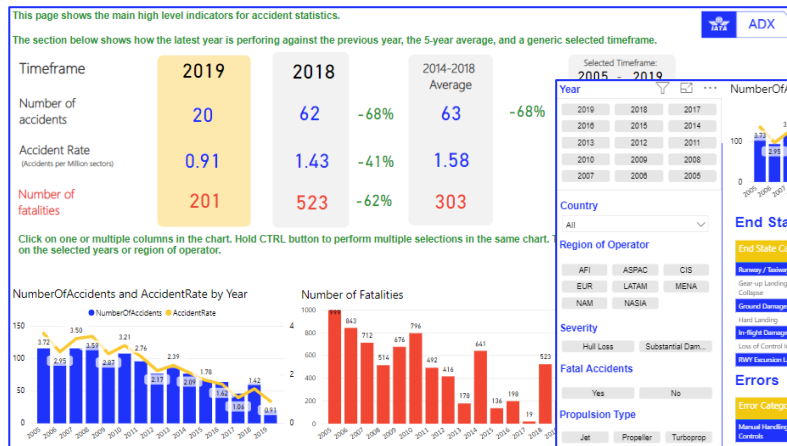
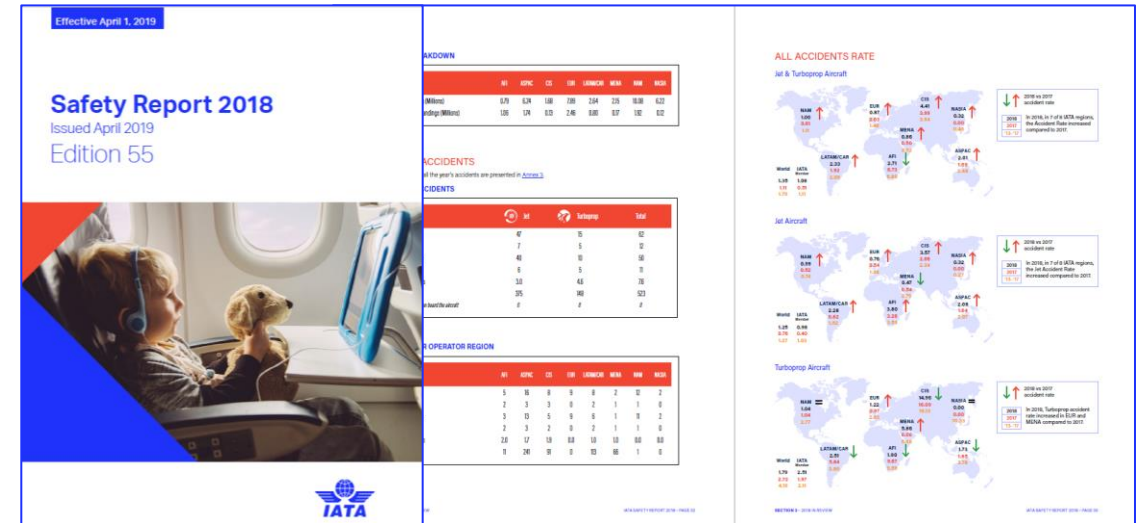
- IATA's Operations, Safety & Security Division
  - Safety & Operational Data and Analytics Programs
- GADM is a unique global aviation safety database with IATA serving as a custodian trusted by the industry to do this.



# Database and Safety Analysis

## Safety Analysis

- GADM provides **safety analyses** from its databases to derive **insights** to members.
- Besides, GADM data **contributors have access to benchmark dashboards and query tools to proactively identify safety risks.**



# Safety Information Exchange Governance Document – De-identification for Program Derived Information

- In all cases, **safety information** produced by the individual programs **shall be de-identified**
- De-identification means that it is not possible for individuals to identify the source of the data or information
- **All published FDX and Incident Report analyses (IDx) will be de-identified** to assure the protected identity of an airline or crew member or other sensitive information
- IATA employs the general "**rule-of-three**" philosophy for de-identification. As such, to provide analysis on any parameter (Region, Aircraft category, Airport, etc.) there must be at least three participants' information represented. For example, at least three participants must be contributing data from each country/region before that country/region is identified in an analysis
- **Only de-identified information on trends can be shared, not individual events**

# FDx Flight Data exchange

22 May 2024

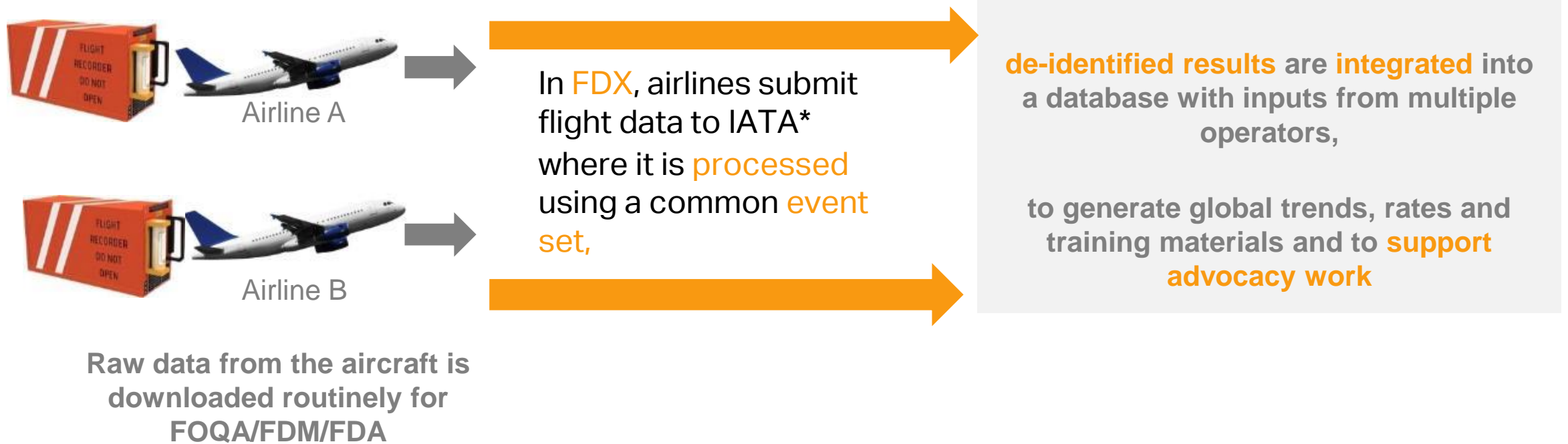


# What is FDX?

**Objective: to mitigate safety risks and improve flight efficiency**

- ❖ **Global aggregate de-identified program** using FDA data to help airlines identify safety trends
- ❖ Allows the airline to look at data **beyond their limited airline dataset**
- ❖ Airlines use **benchmarking tool** to compare safety performance and issues against global and regional safety trends
- ❖ **Not a FOQA program**
- ❖ Allows airlines to query information and compare performance using a web-based platform
- ❖ Supports airlines through providing in-depth analyses when required

# How does it work?



(\*) IATA works with Flight Data Services as its collaborative partner for FDX data processing. Data is displayed only when there are at least 3 operators with the same aircraft type. De-identification includes: no airline information is available, the tail numbers and the flight numbers are written off, the flight date is set to the first day of the month.



# Important Definitions

## USER EXPERIENCE DESIGN – FUNNEL (MAD) APPROACH

This approach follows three simple steps:

**M - Monitor:** Summarized overview of the data, enable users to assess their trend at a glance.

**A - Analyze:** Enables users to review KPIs from different perspectives by using advanced filtering options.

**D - Detail:** Offers an advanced view of the data, to perform a deep dive analysis with additional context and advanced analytics such as Boxplots, Scatter charts and others.





# FDX Operator Benchmarking Dashboard



## Consistent report structure



The visuals presented in this page display My FDX Rate and Benchmarking FDX Rate for the following categories, and FDX Flights as follows:

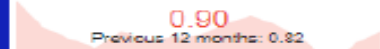
Last published month of data in the analytics is: **January 2023**  
All metrics displayed in this page cover the following periods: Last 12 Months is *Feb 2022 - Jan 2023*; Last 3 Months is *Nov 2022 - Jan 2023*; and Previous 12 Months is *Nov 2021 - Oct 2022*.

**My FDX Flights Overview:**  
My FDX Flights for **Last 12 Months: 17,609**, and for **Last 3 Months: 2,217**. Refer to the tooltip in the **blue ?** headers icon of this box or to the [Operator Status Dashboard](#) for the full flight overview.

Select between *Last 12 Months* or *Last 3 Months* benchmarking metrics:



### RST Overview

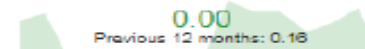


My FDX Rate for the last 3 published months has increased by 0.78% compared to My FDX Rate for the previous 12 published months.

#### Benchmarking Last 12 Months

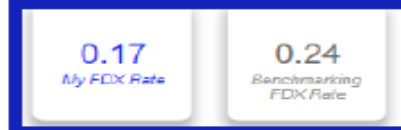


### TCAS RA Overview

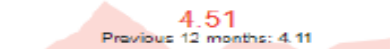


My FDX Rate for the last 3 published months has decreased by 100.00% compared to My FDX Rate for the previous 12 published months.

#### Benchmarking Last 12 Months



### GPWS Overview



My FDX Rate for the last 3 published months has increased by 0.78% compared to My FDX Rate for the previous 12 published months.

#### Benchmarking Last 12 Months



## Comparative Analytics



### UA Overview

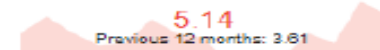


My FDX Rate for the last 3 published months has decreased by 30.06% compared to My FDX Rate for the previous 12 published months.

#### Benchmarking Last 12 Months



### GA Overview

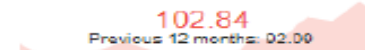


My FDX Rate for the last 3 published months has increased by 42.30% compared to My FDX Rate for the previous 12 published months.

#### Benchmarking Last 12 Months



### RSL Overview



My FDX Rate for the last 3 published months has increased by 11.63% compared to My FDX Rate for the previous 12 published months.

#### Benchmarking Last 12 Months



**IDX in numbers**



STEDES incident reports



GDDB aircraft damage reports

**Streamline the Data Submission Process**



**Enhanced analytic tools & Interactive User Interface**



**Comprehensive analyses integrating Artificial Intelligence analytics**



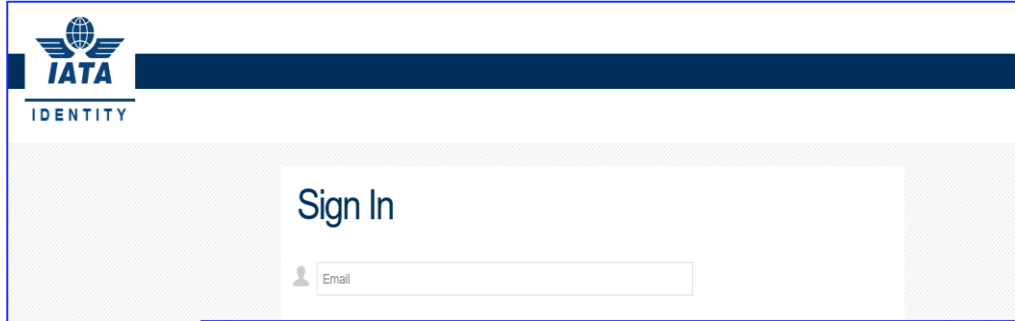
**IDX**



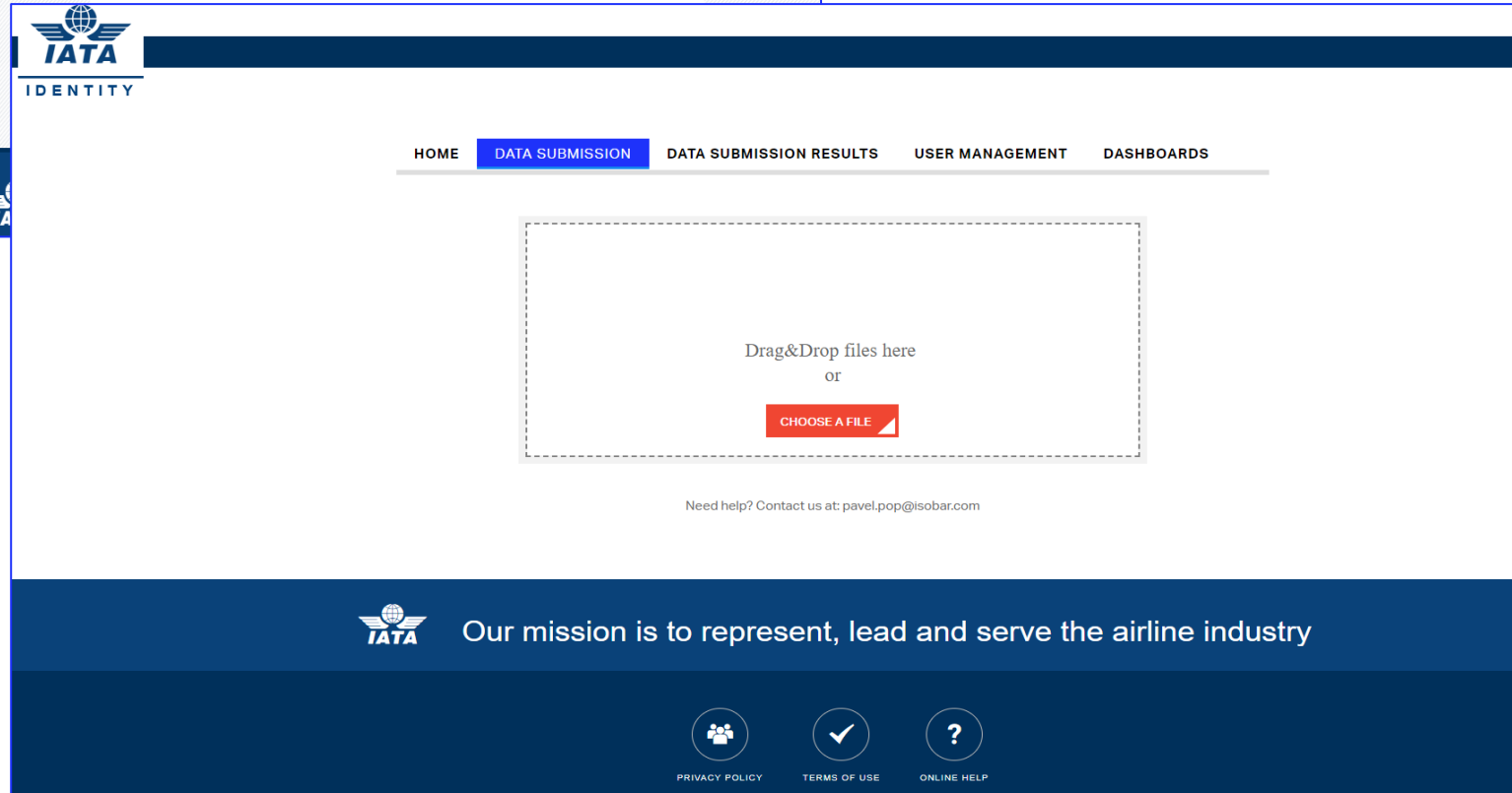
**Benefits**

- ✓ Easy access to shared safety & security data
- ✓ Benchmarking at the regional and global level
- ✓ Performance Monitoring
- ✓ Understanding of critical incident trends
- ✓ Identifying targets for improvement
- ✓ Continuous improvement of standards, procedures and recommended practices

# Data file submission



- Log-in into GADM one identity portal



- Drag& drop file containing incident reports



# Data submission requirements



## IDX CSV Data Format Guideline

June 21<sup>st</sup>, 2019

The objective of this guideline is to provide the necessary instructions for on-boarding IDX members into the new system and to help members understanding how the standard CSV (Comma Separated Values) submission format is being structured and what are the requirements and desired values for each field. The reports should be submitted in the given `template2.2Unmapped.csv`.

Please Note that the IDX database is currently under development and the final IDX data submission process may be different from what is being provided in this guideline.

### List of Required Fields

#### Mandatory Fields

Reports with any mandatory field missing will NOT be processed into the database and rejected due to data quality standards.

Mandatory Fields	Definition	Format	Example
Report ID	Unique identifier of the report	Free text	'AB12345' or '12345'
Report Title	Title of the event	Free text	
Summary	Narrative of the event	Free text	
Date of Occurrence	Date when the event occurred	YYYY-MM-DD	2019-JAN-05
Location of Occurrence	The location where the event occurred	IATA or ICAO code	YUL or CYUL
Flight Phase	Phase of flight when the event occurred	Free text	TOF, TKOF, Take-off
Departure Airport	Airport of origin	IATA or ICAO code	YUL, CYUL
Arrival Airport	Destination airport	IATA or ICAO code	LHR, EGLL
Aircraft Registration	Aircraft registration number	Free text	XX-XXX
Aircraft Type	Aircraft type	Free text	Boeing 777-300, B773
Event Classification (Descriptors 1 ~ 20)	Descriptor used to classify events; unlimited number available (see Event Classification section below)	Operator Event Classification (All levels in one field)	Flight Management - Bird strike

- The file submitted must contain a set of **minimum mandatory fields**:
  - **Report ID**: unique identifier of the reports
  - **Report Title**: Title of the event
  - **Summary**: Narrative of the event
  - **Date Of Occurrence**: Date when the event occurred
  - **Location Of Occurrence**: The location where the event occurred
  - **Flight Phase**: phase of flight when the event occurred ("ground" phases are also included, like parked post arrival, ground servicing, pre-flight, ...)
  - **Departure Airport**
  - **Arrival Airport**
  - **Aircraft Registration**
  - **Aircraft Type**
  - **Event Classification (Descriptors)**





# IATA Incident Data Exchange (IDX)

## IATA's safety and security incident data management



Your Global Aviation Data Sharing Platform



### WHY IDX?



- Helps organizations meet the IATA operational Safety Audit (IOSA) and IATA Standard Safety Assessment (ISSA).
- Grants easy access to shared safety and security data which highlights critical trends on a regional / global scale, as well as anticipates operational challenges at specific airports (IDX).



We offer you **Enhanced Analytics Tools** with easy access to Safety & Security Data and **Comprehensive Analyses** integrating IATA Subject Matter Experts expertise and statistics allowing for:

- ✓ **Benchmark at both the regional and global level;**
- ✓ **Identify critical incident trends whilst setting targets for improvement and;**
- ✓ **Anticipate operational challenges at specific airports.**



### IDX – Your Global Aviation Data Sharing Platform

IDX is the **only global aviation safety and security database on a global level**, with IATA serving as a trusted custodian by the industry to do this.



### Be the Next One

and let's grow the Program together!

Participation in the Incident Data Exchange (IDX) program is open to Airline Operators, Ground Service Providers and Airports providing ground services.



IDX is an **ISO 9001:2015** certified program - a respected framework of quality assurance.



IDX complies with **ISO 27001** standards - all data exchanged is **protected** and **secured**



**IDX Safety Analysts and Data Scientists are here for you!**



**\*\*\* IDX is FREE \*\*\***



### How to join?



GADM@IATA.org



+1 (514) 261 1990

...or contact your IATA regional representative

*Thank you!*



# FDX Statistics



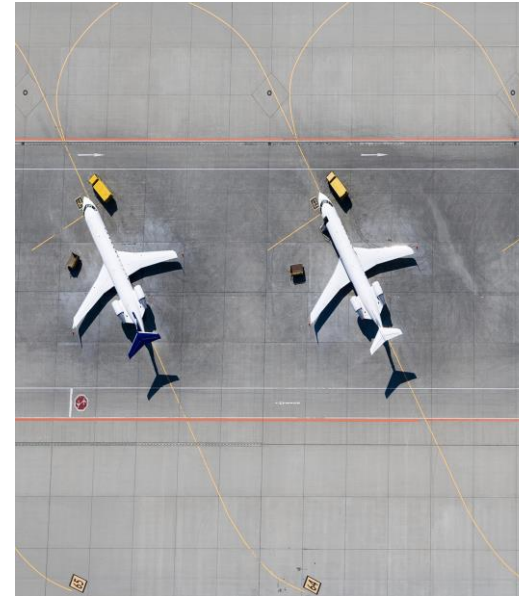
More than  
**209**  
Airlines and  
growing

More than  
**15 000 000**  
flights globally

More than  
**7500**  
aircraft



# IDX Statistics



**271**  
Airlines  
Participants  
and growing

**IDx members / MENA -26**

**FDx members /MENA - 20**

# Introduction to Maintenance Cost data eXchange (MCX)





# MCTG\* Data Collection renamed...



Now part of IATA's **Global Aviation Data Management (GADM)** program with...

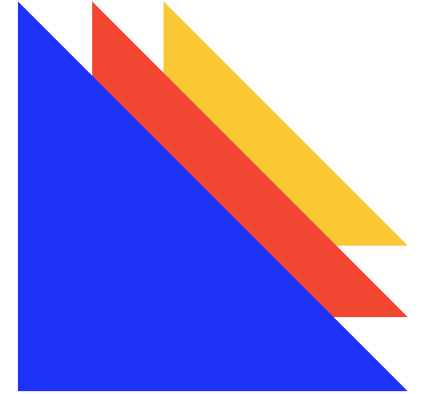
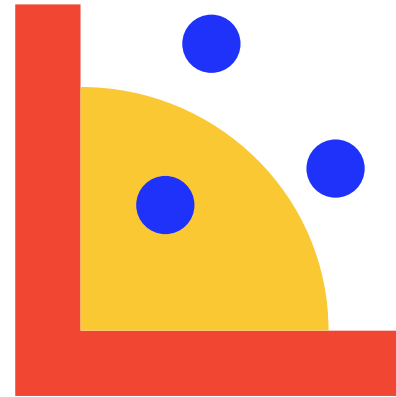
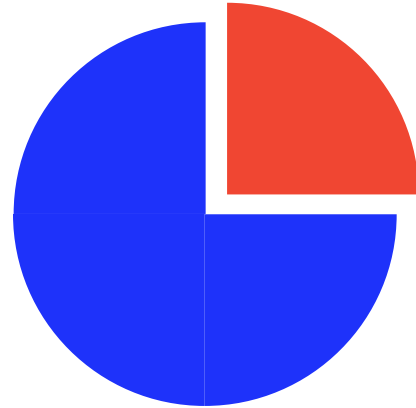
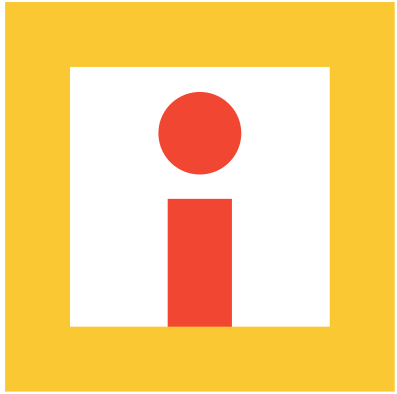


\*MCTG = Maintenance Cost Technical Group ⇒ [iata.org/mctg](http://iata.org/mctg)

# About MCX

- A voluntary data exchange program; free of charge
- Objectives:
  - Define and standardize maintenance cost reporting
  - Develop benchmark capabilities
  - Share knowledge, experience and industry best practices for cost management
- Annual data collection, based on fiscal year
- Industry group: **Maintenance Cost Technical Group (MCTG)**

# MCX Data Journey



**De-identification**  
1. Aggregation  
2. Rule of Three & Five



**Development of  
Analytics**



**Data Visualization  
(MCX Report, Dashboard)**

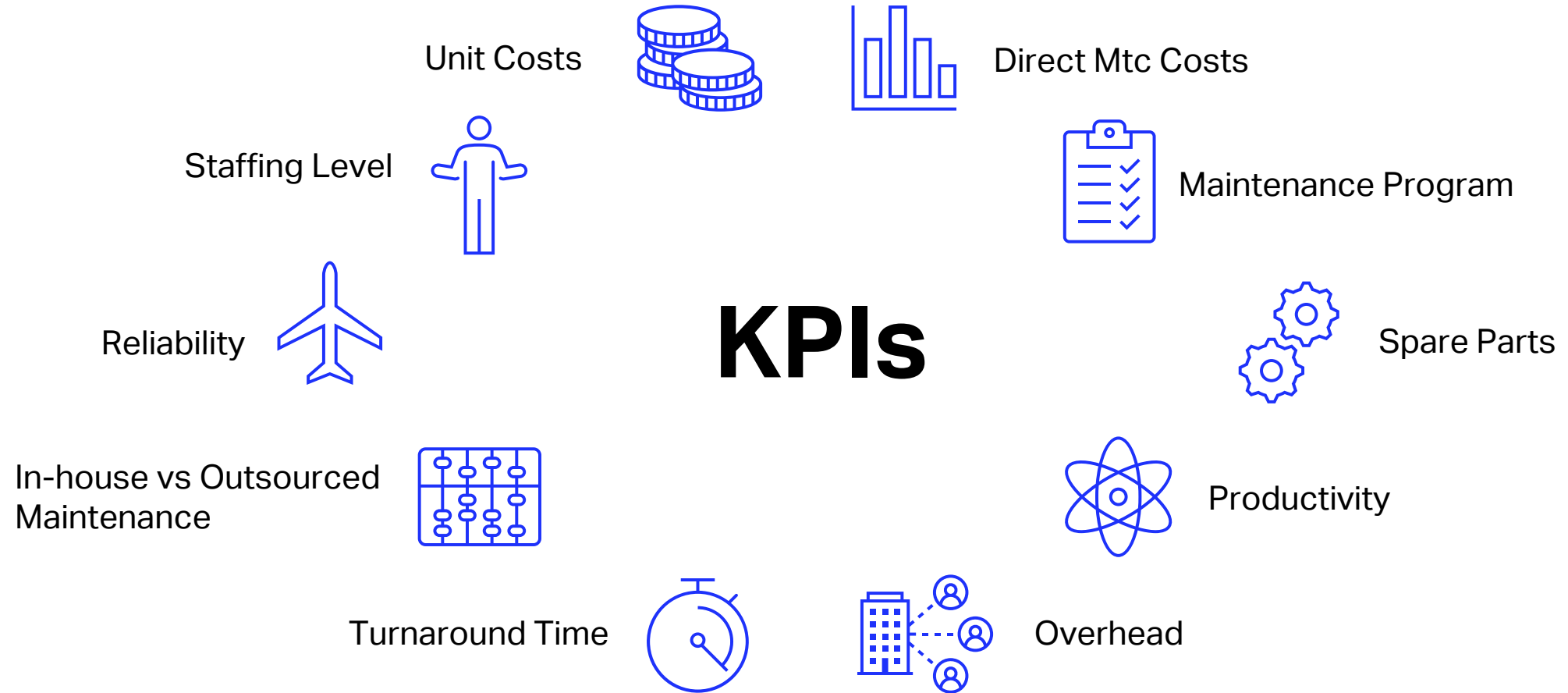


**Airline**

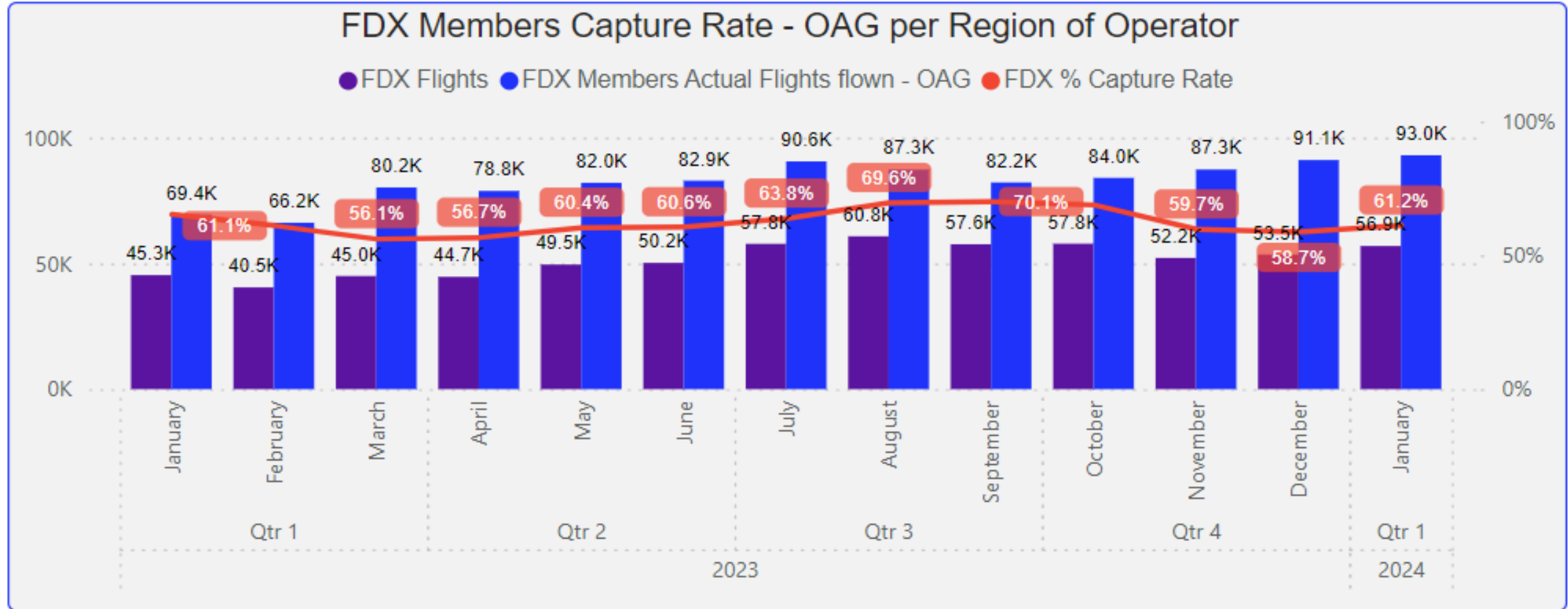
# Maintenance Cost Methodology

- Standard definitions: what is a maintenance cost and what's not
- Managerial accounting ≠ Financial accounting rules (IFRS & GAAP)
- Allocating the ops data and maintenance costs
  - By aircraft/engine type
  - By segment (Line, Base, Component, Engine)
  - By element (Labor, Material, LLPs, Subcontracted)
  - Direct vs Indirect costs
- De-identified, aggregated data

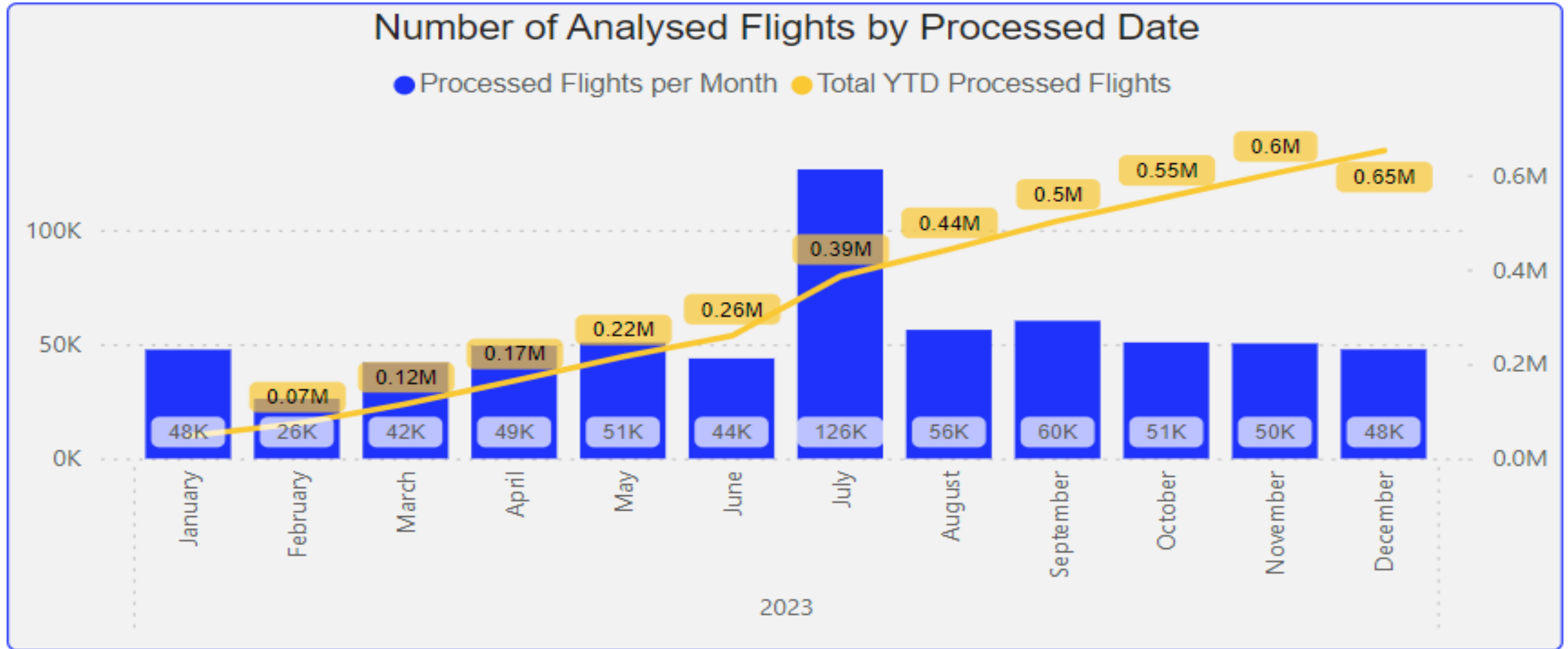
# Key Areas & Metrics



# Data Submission- Capture Rate AME

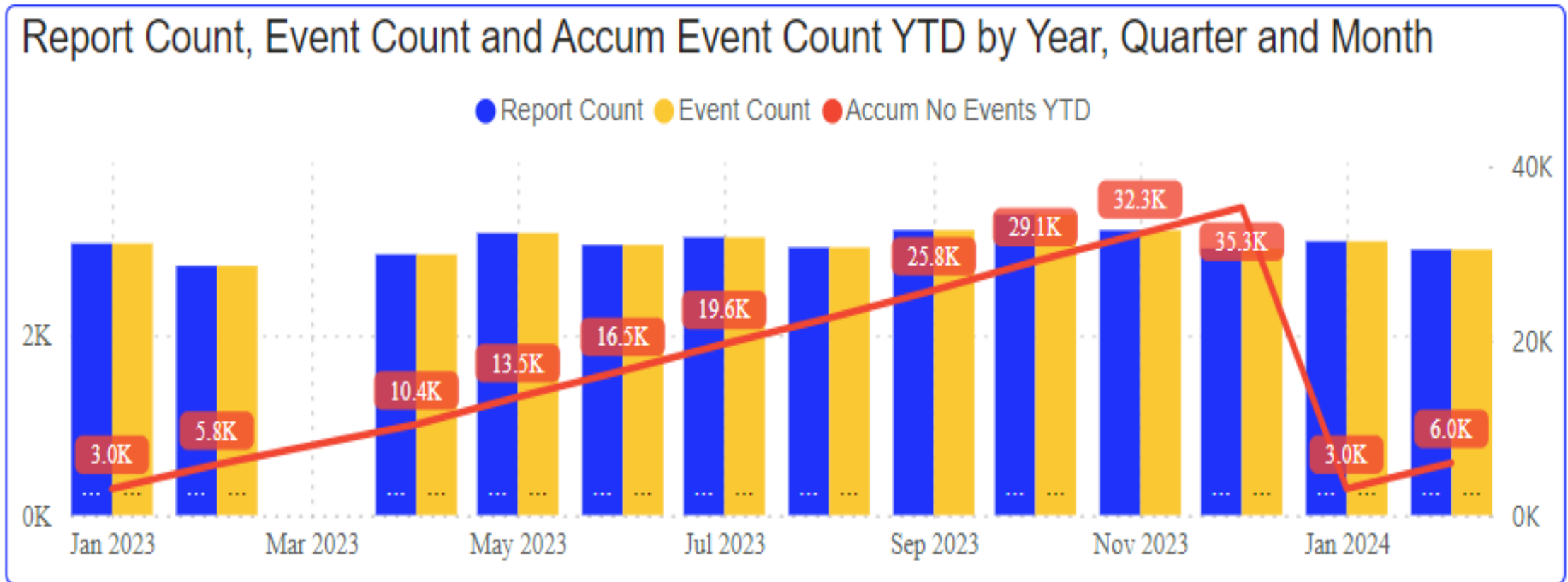


# Data Submission –FDx AME





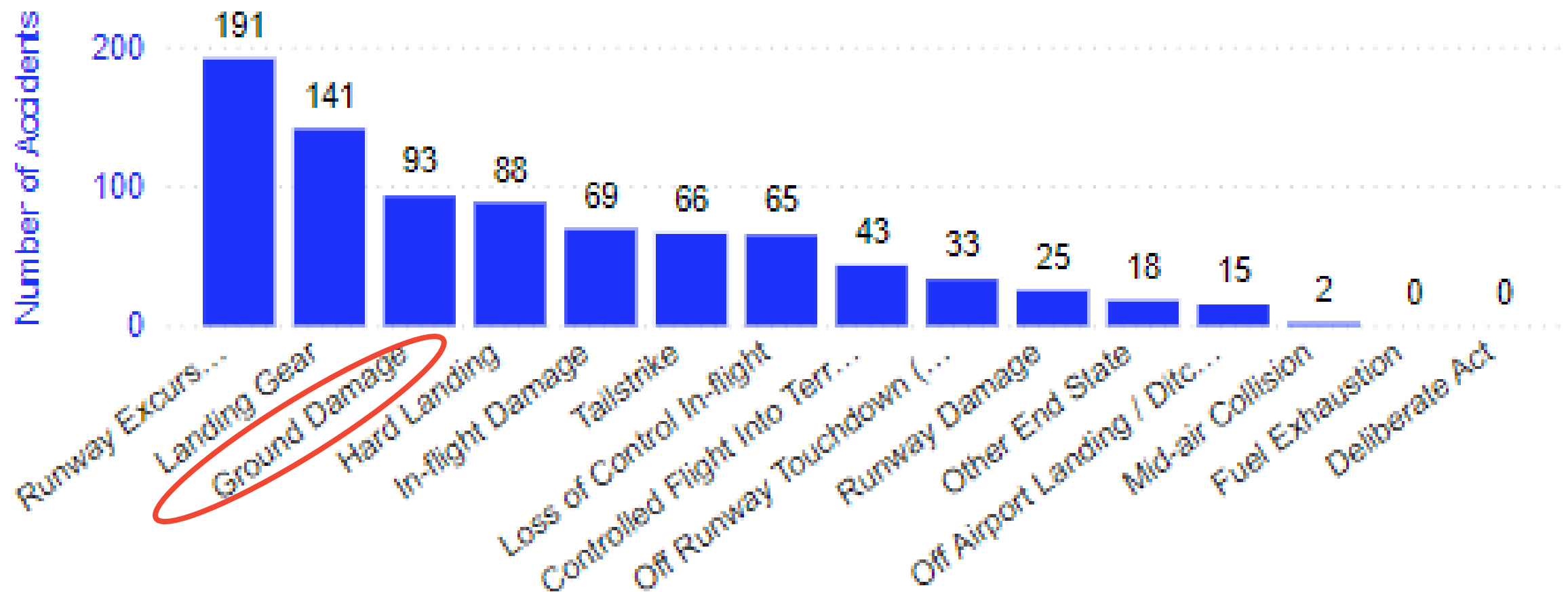
# Data Submission -MENA IDx



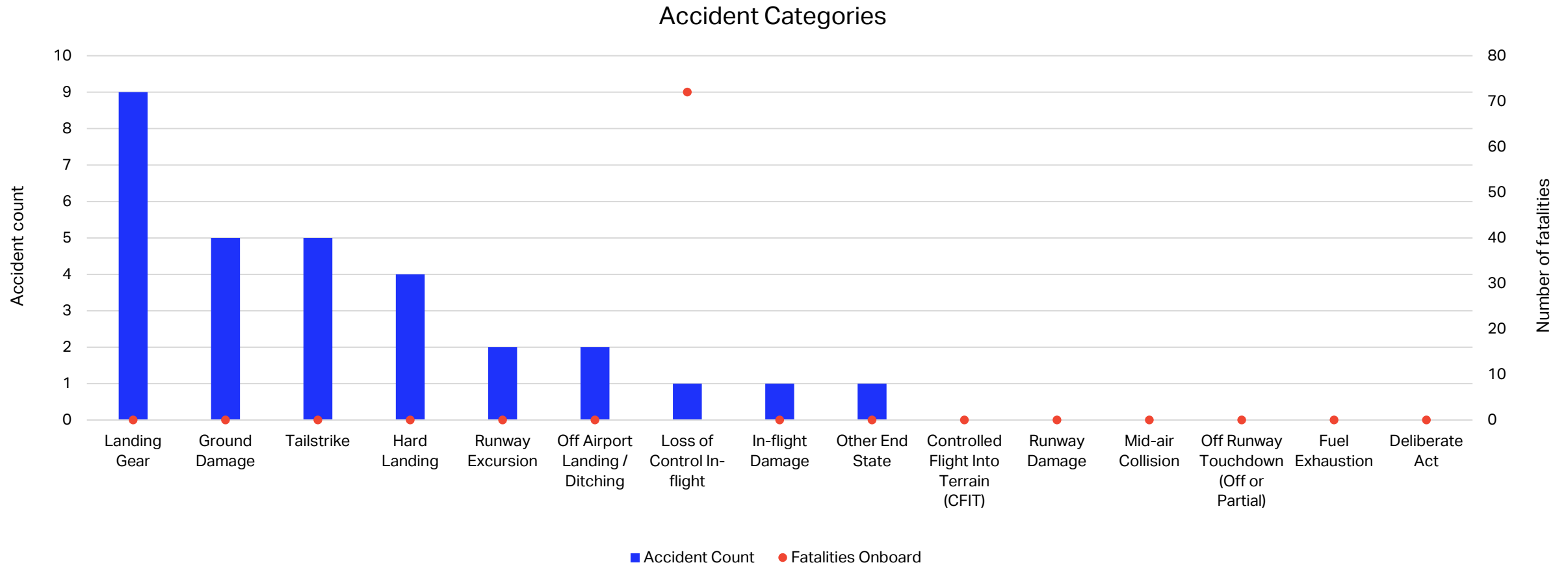
# Aircraft Ground Damage



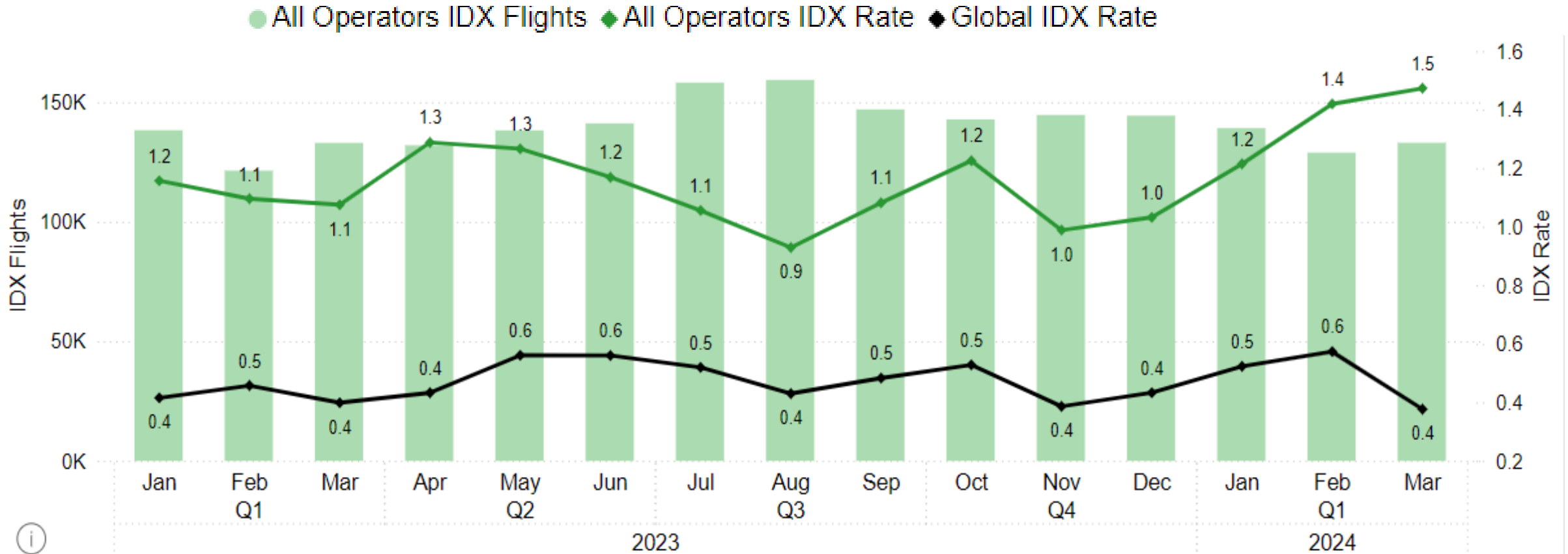
# Accidents Count per Accident Category 2010-2023



# Industry Accident Count/Fatalities per Accident Category



# IDx Incident Aircraft Damage Rate



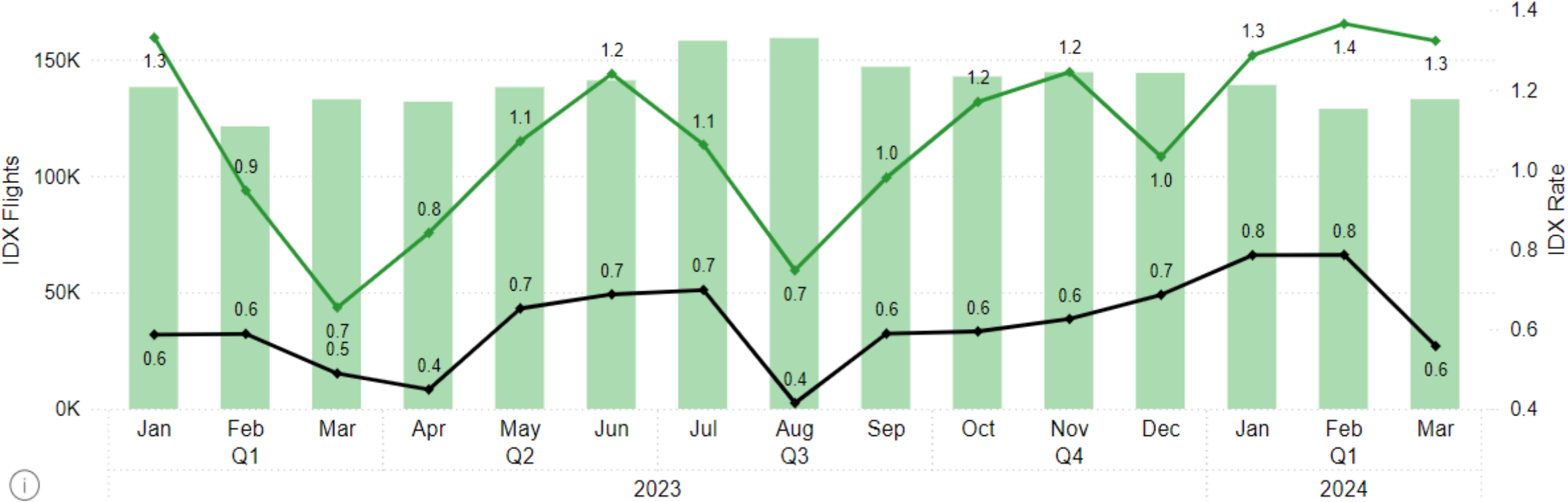
All Operators IDx Rate  
**1.16**

Global IDx Rate  
**0.47**



# IDx Loading Error

- ☑ Ground
- ▷ ☑ Load Control
- ▷ ☑ Passenger Handling
- ▷ ☑ Ramp Handling



All Operators IDx Rate

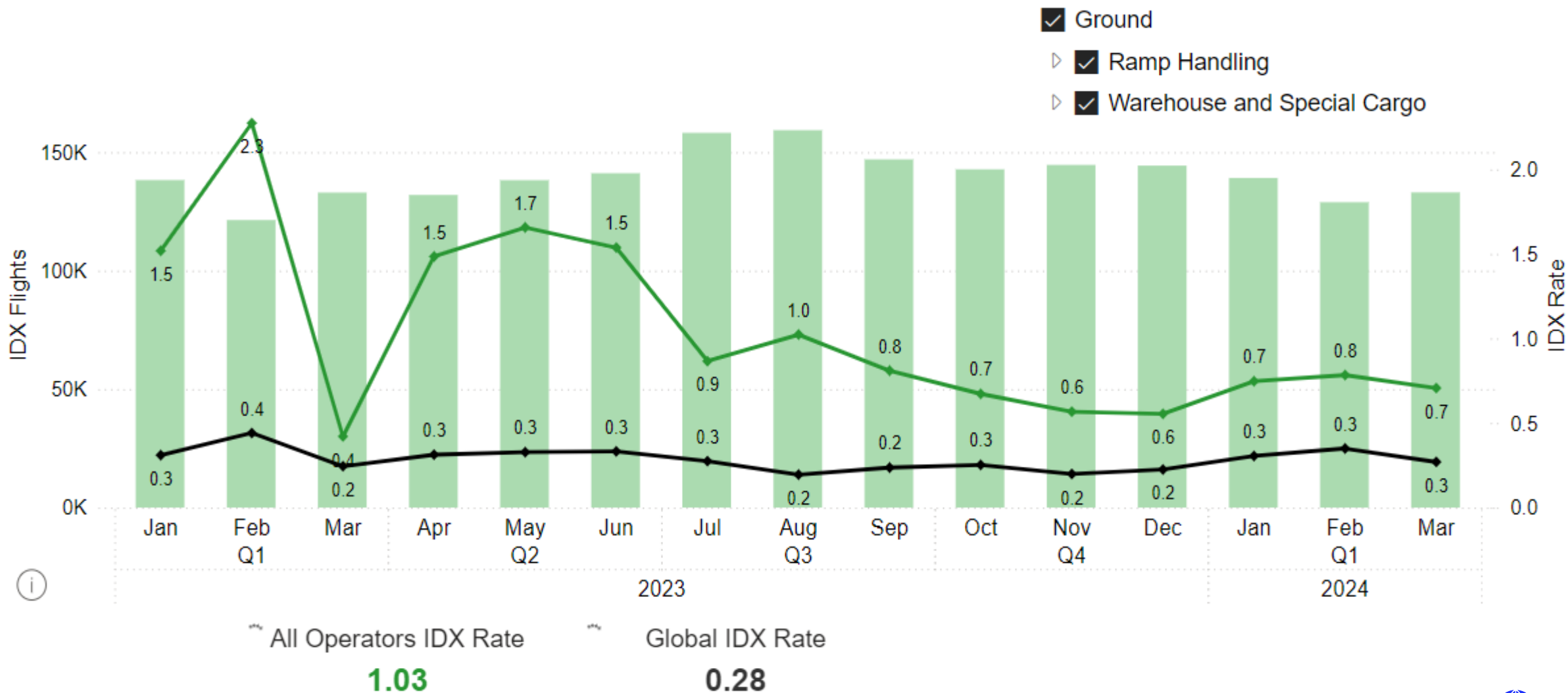
**1.08**

Global IDx Rate

**0.61**



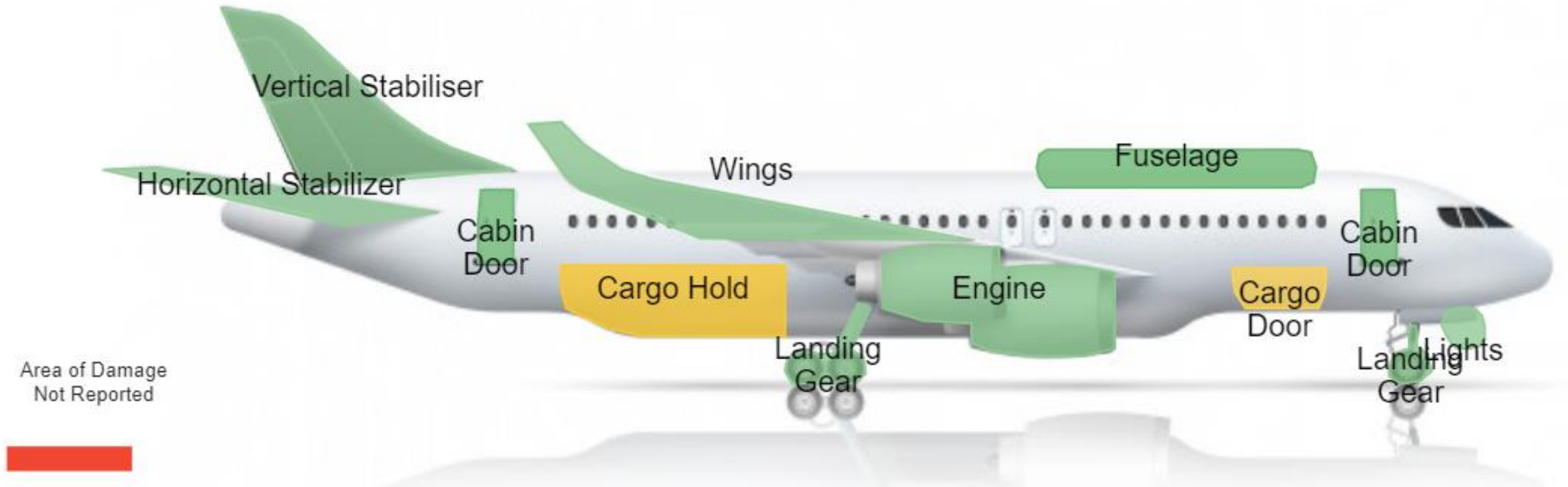
# IDx Aircraft damage (ULD)





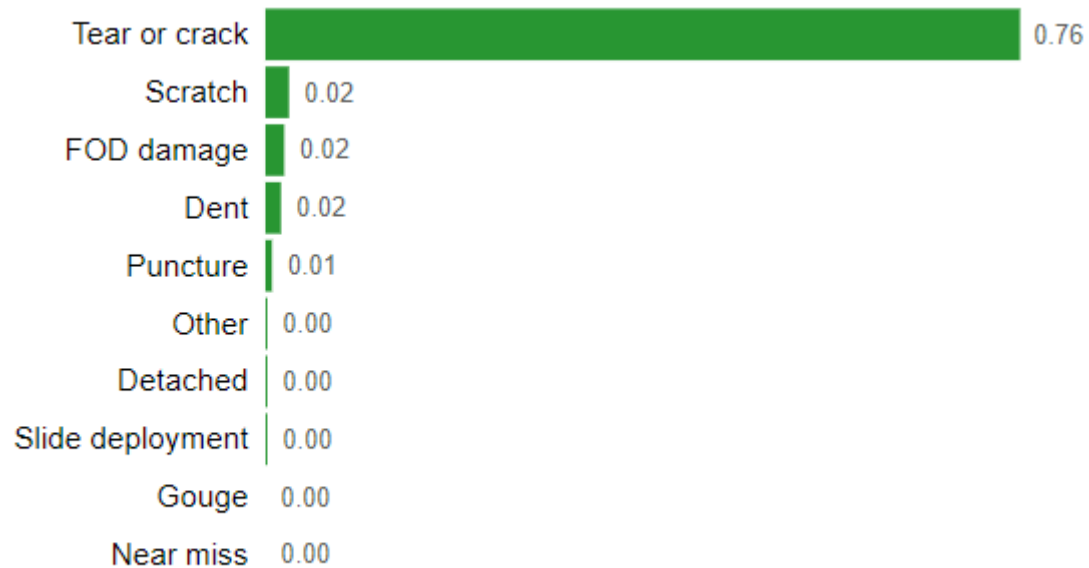
# Damage Location MENA

Color coding based on the frequency out of total events submitted in IDX:



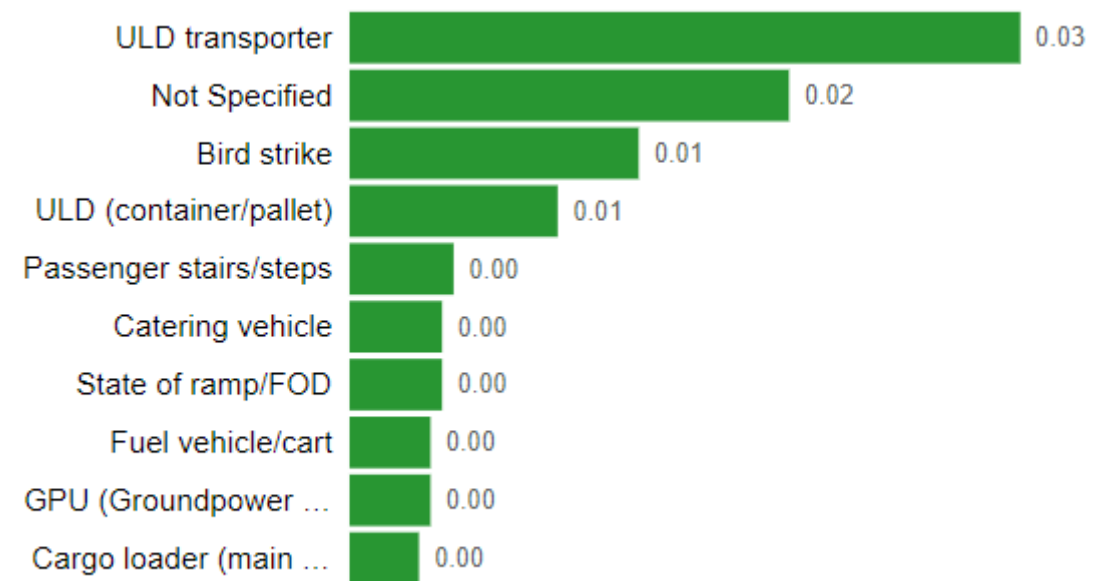
# Aircraft Damage (2023-Q1 2024)

## Type of Aircraft Damage



IDX Rate

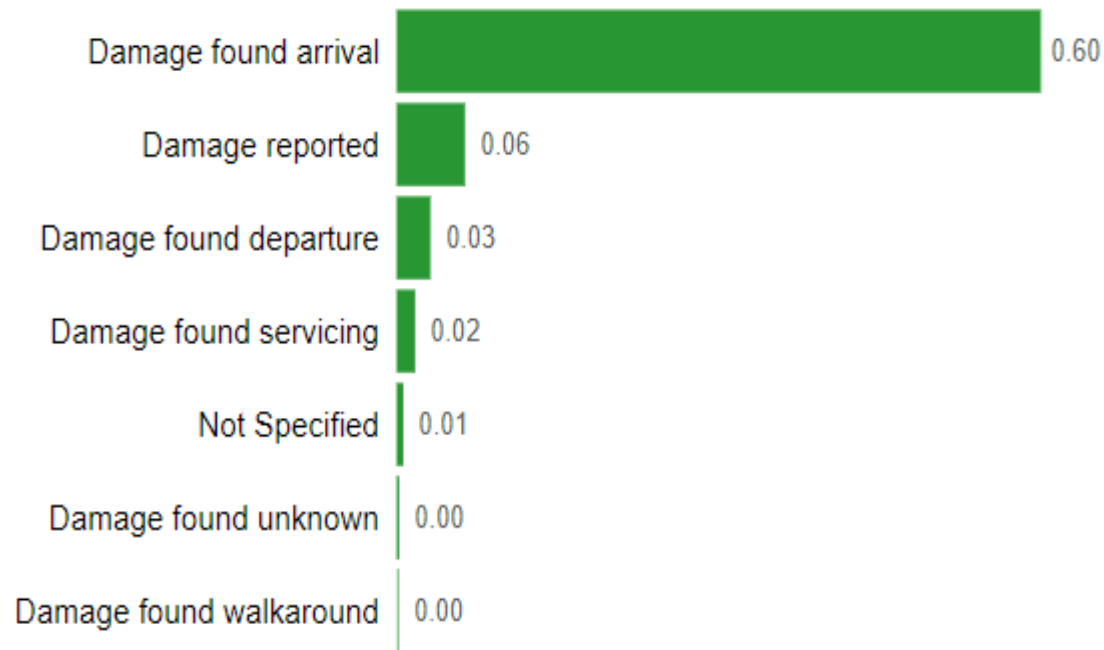
## Source of Aircraft Damage



IDX Rate

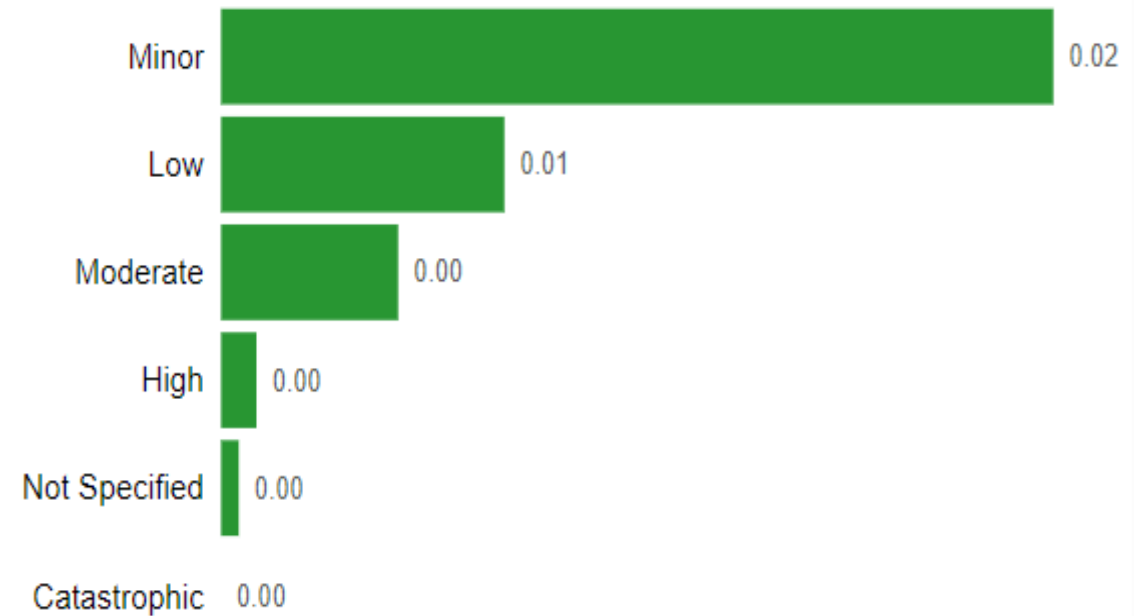
# Report Type & Severity

## Report Type



IDX Rate

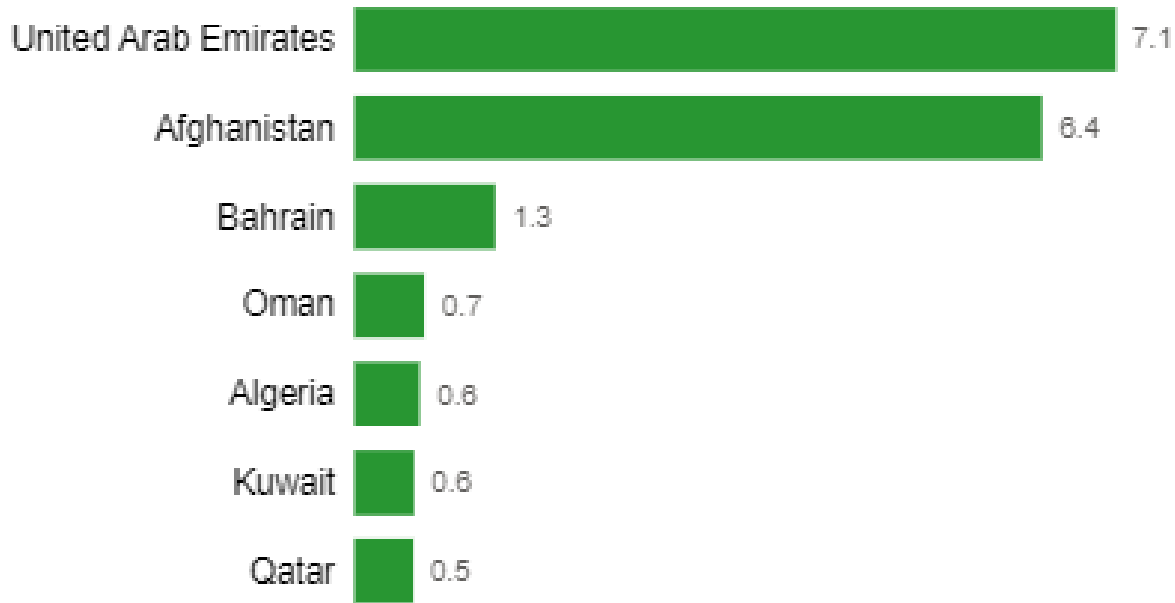
## Operational Impact/Severity



IDX Rate

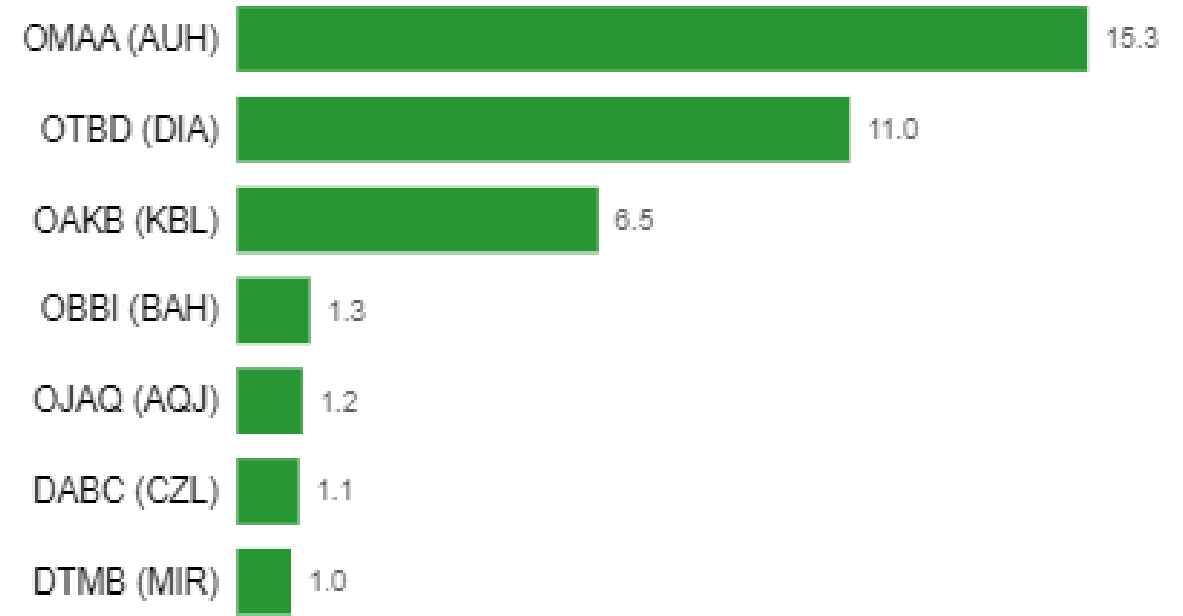
# Locations Trends

## Occurrence Country



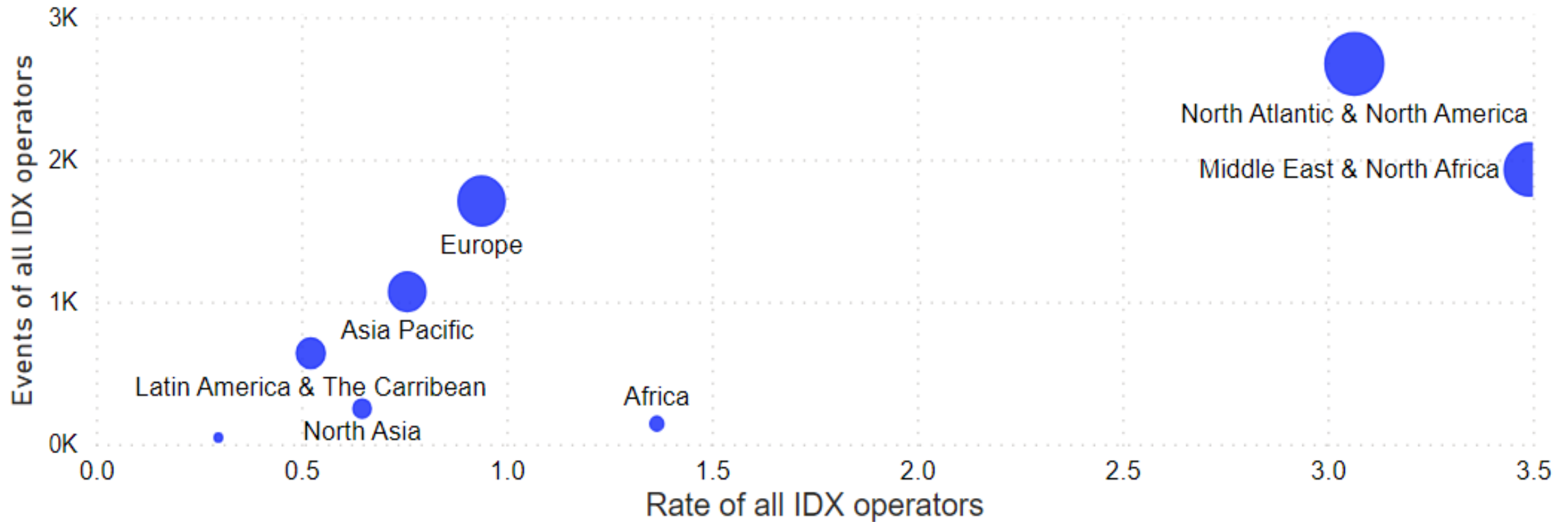
IDX Rate

## Occurrence Airport



IDX Rate

# Region/Country of Incident



*Size of the bubbles represents the number of events of all IDX operators*

# IATA Safety Audit for Ground Operations

ISAGO established in 2008 at request of airlines to address ground damage and safety occurrences

- +3000 audits conducted
- Developed operational procedures and audit standards
- Covers corporate management systems and airport operational implementation
- ISAGO program revamped in 2018 introducing the [Charter of Professional Auditors](#)
- [SMS implemented since March 2016](#) & equivalent to Annex 19
- Checklists used by many airlines/airports
- [Approx. 500 ISAGO reports available](#)
- ISAGO is the only global program specifically **aimed at improving safety of ground operations at airports**



# ISAGO Objectives

Global standard for the oversight and auditing of GHSPs

- ↑ Safety performance improvement in ground operations
- ↑ SMS: Enhanced understanding of high-risk areas in ground operations
- ↑ Harmonization and standardization in ground operations
- ↓ Reduction in ground damage and injuries
- ↓ Drive down the number of duplicate or redundant airline audits
- ↓ Reduced costs: less damage and less/reduced airline audits

# Recommendation

- **States to** implement provisions in ICAO Doc 10121 Manual on Ground Handling
- Recognize/endorse industry initiatives that drive ground operations harmonization, standardization, SMS implementation by GHSPs and risk reduction in ground operations.
- **Recommend airlines and GHSPs to adopt IGOM and AHM 1100 and recommend GHSPs to undergo ISAGO accreditation** that validates that IGOM, AHM 1100 and SMS requirements are implemented by the ground handling company.



Thank you!

