Harnessing the Power of Data

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Aviation's data age is upon us, and the potential to transform the industry is tremendous.
The Global Aviation Data Management (GADM) program is a data management platform which integrates all sources of operational data received from various channels. These include IATA-unique programs, which all feed into a common, interlinked database structure.

- IATA is the leading source of aviation safety and operational data
- The Global Aviation Data Management (GADM) program is a data management platform which integrates all sources of operational data received from various channels. These include IATA-unique programs, which all feed into a common, interlinked database structure.
- Three main pillars:
  - FDX – Flight Data Exchange
  - IDX – Incident Data Exchange
  - ADX – Accident data

Our Value Proposition | We champion data with our premier global aviation safety and operational data exchange program

FDX - Flight Data Exchange
- Flight data sharing program
- De-identified, secured data protected by rule-of-three
- More than 199 participants and growing
- 15% of global flights. Objective to grow at 30% of global flights by 2024

IDX - Incident Data Exchange
- Safety (Ground, Flight, Cabin, Maintenance, Engineering, etc.) and security occurrences
- 220 airlines and growing / 800+ airports

ADX - Accident
- Commercial aviation accidents since 2005
- Accident Classification Technical Group (ACTG) validate the accidents and identify contributing factors.
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- **IATA’s Flight Data eXchange (FDX)** program comprises data from 15 million flights performed by 7,500 aircraft.
- The FDX data captured from each flight monitors hundreds of parameters per second, thus making GADM the most authoritative and comprehensive collection of global aviation operational data in the world.
Data Insights | Designed to bring added-value to the airlines and industry

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Examples of insights gained through GADMs enhanced capabilities include:

- Identifying emerging safety risks
- Fuel Efficiency Measurement
- Aircraft Emissions Calculations
- Predicting Aircraft Performance
Insights #1 | Identify emerging safety risk

- Through extensive aggregation of GADM’s data, IATA is able to identify emerging safety trends, whether at specific airports, regions, or for certain types of operation.
- Such analysis is especially beneficial for airlines exploring new destinations, and for regulators formulating aviation safety strategies.
- Using GADM data, IATA recently identified GPS signal loss in specific geographies as an emerging safety risk, for example.
**Insights #2 | Measure fuel efficiency**

- Fuel currently represents nearly a third of the operational expense of an airline.
- Since 2005, IATA has worked with airlines to identify fuel saving opportunities and identified average potential fuels savings of 4.4% across flight dispatch, ground operations, and flight operations.
- IATA uses GADM operational data to enhance the analysis done by its fuel experts and provide industry benchmarks related to fuel efficiency.

**References: IATA analytics. The graph provides an overview of the evolution of fuel burn / OTK over a period of time. Efforts undertaken by the airline are showing a significant improvement over time. Operations Ton Kilometer (OTK) is a unit of measurement used in transportation statistics, planning, and related fields to measure the quantity and traffic of transportation. It is defined as the transportation of one ton over one kilometer.**

**Monthly Evolution of Fuel Burn/OTK**

- **Aircraft A**
- **Aircraft B**

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**Insights**

- **Airlines cost structure**
  - Fuel represents on average between 25% to 28% of operational expense of airlines.

- **IATA Fuel Efficiency Program**
  - IATA Fuel Efficiency Program was established in 2005, with the objective of supporting airlines in increasing fuel efficiency. On average, IATA Fuel Efficiency Program has identified fuel savings of 4.4% of the fuel budget (ranging from approx. 1% to 14%).

- **Overarching KPI**
  - IATA uses several data sources to calculate fuel burn / OTK as well as other fuel consumption indicators allowing airlines to benchmark their performance.

- **Opportunities to improve fuel efficiency**
  - This provides the airlines a unique opportunity to identify underperformance and possibly reach out to IATA for assistance to improve fuel efficiency.
Insights #3 | Calculate aircraft emissions

References: IATA analytics. The graph provides an overview of CO2 / ACTK for a cargo airplane. The study was performed by leveraging data of 50,000 flights of this specific aircraft type. Available Cargo Ton-Kilometer (ACTK) is a measure of an airline’s cargo carrying capacity. It is calculated by multiplying the weight of the cargo in metric tons by the distance traveled in kilometers.

- Analyzing GADM data is leading to more granular measurement of aircraft fuel burn and, consequently, tracking of CO2 emissions.
- With analysis of hundreds of data parameters at every second of flight, it is also possible to identify the precise impact of fuel saving operational measures.
- All of these will help the industry as it moves towards net zero carbon emissions by 2050.
Predicting the performance of an airplane is fundamental to achieve profitability.

IATA’s research and development work intends to build deep learning models to predict block fuel with a high level of accuracy.

Such information is of interest when considering buying new airplanes or when strategic network planning decisions are to be made.

References: IATA analytics. The graph provides a comparison of the fuel burned during a flight vs fuel predicted by the deep learning model developed by IATA.
To support its increased focus on data, IATA is staffing-up a newly established a division responsible for data management, strengthening the Global Aviation Data Management (GADM) team and expanding its team of data scientist XX%.

IATA Consulting has also geared-up to help clients achieve their business goals using GADM and other IATA data collections and expertise.
Questions?