

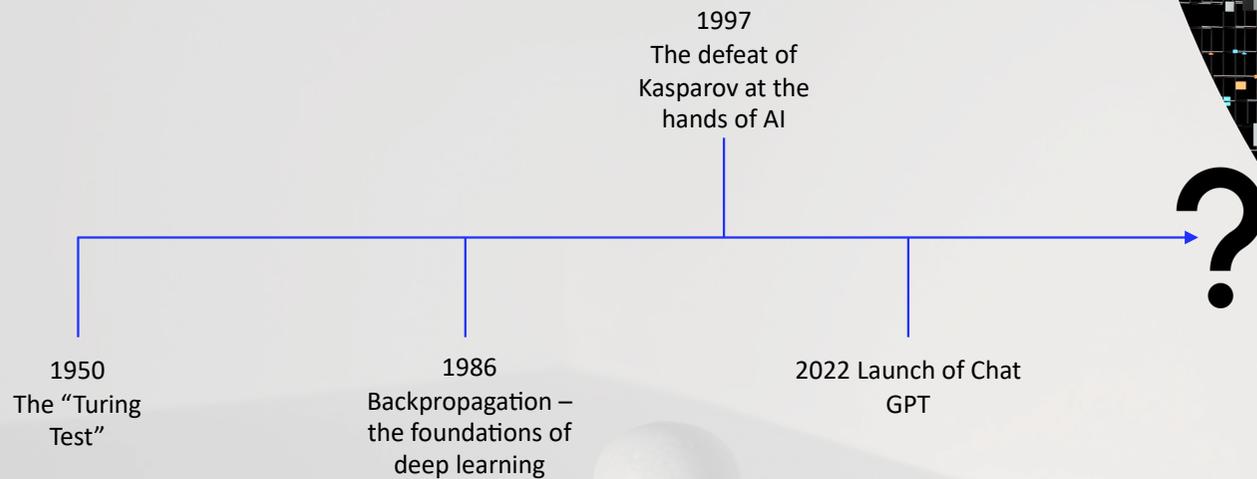
EASA Annual Safety Conference

The Role of Technology in Enhancing Aviation Safety

Mark Vincent – Head of Safety Risk and Quality Assurance



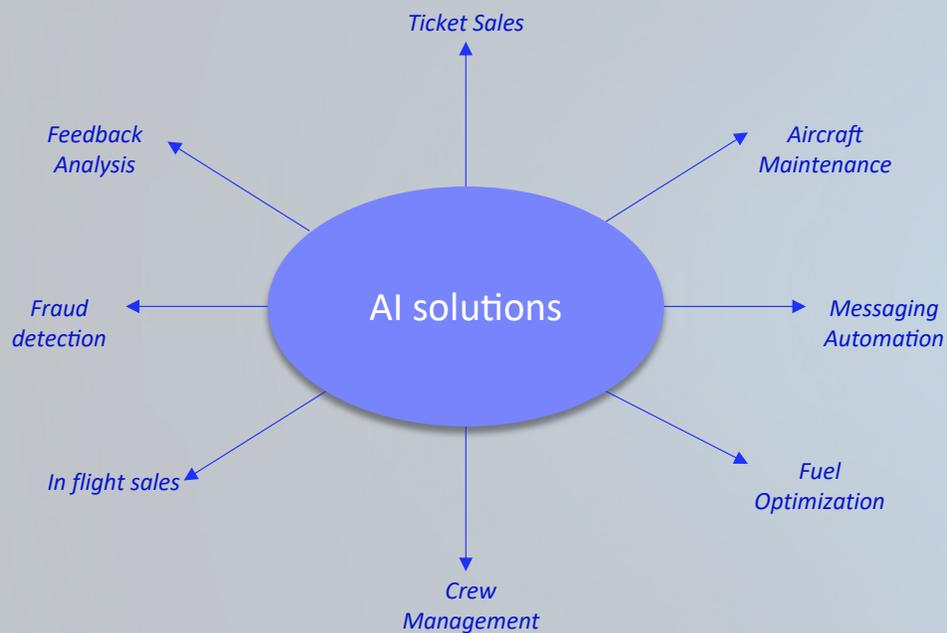
AI – What is our reality?



So...what is our reality today?



Our Opportunity

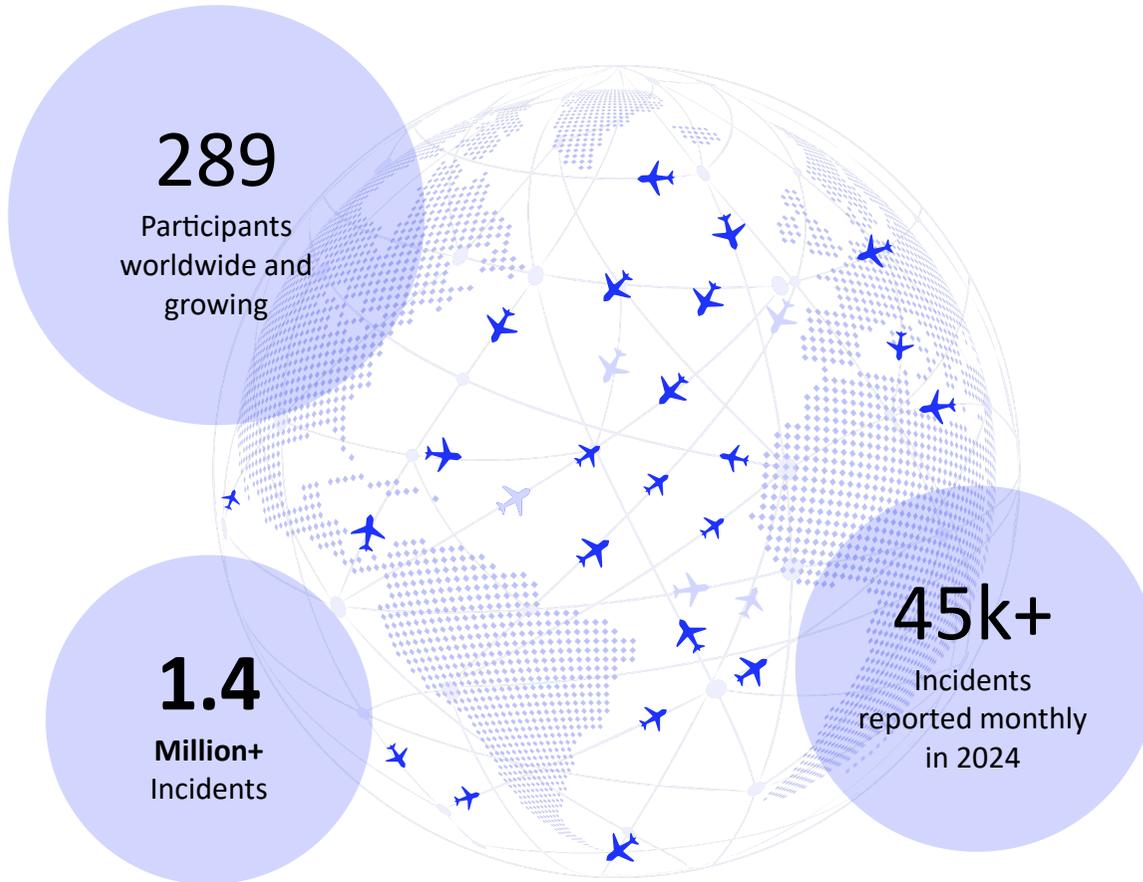


- Safety benefits
 - Increased efficiency for the management of safety reports
 - Better understanding of the data we have
- Target AI solutions on resource intensive activities – free the human in the system!
- Build confidence, the human must remain in the system.





GADM - IDX | Incident Data Exchange Program Overview

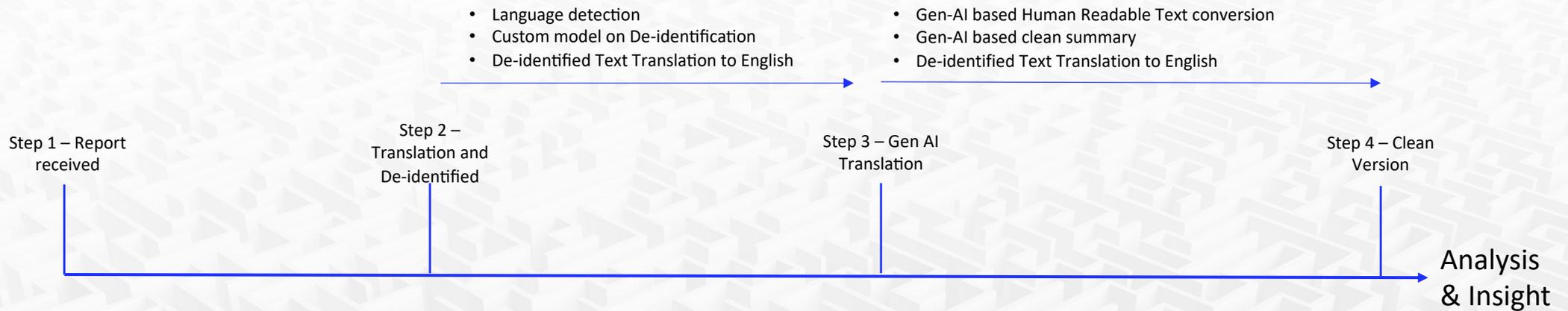


IDX | Shared safety and security data which highlights critical trends on a regional/global scale

- Worldwide aggregated database of incident reports including flight operations, cabin, group operations, safety and security occurrences.
- De-identified, secured data protected by rule-of-three.
- Data ingested in different languages, types, incidents since April 2020.
- Data is analyzed based on different operational units (OU's) & safety performance indicators (SPI's).
- IDX program provides global aviation safety trends on industry dashboard & operator related dashboard to IDX participants globally.



Example - IDX



Description from eReport **EREP999-99*** Est vamos em solo aguardando o estacionamento da acft da *Airline Name* **A999*** prefixo PT-**EEE*** conforme instru o do aeroporto, ao pousar a acft estava livrando na taxiway B

Taxonomy and coding

The aircraft, while parking, failed to follow airport instructions to free up taxiways B and A, and entered the terminal area incorrectly, nearly colliding with another aircraft despite being signaled to stop.



IDX | Incident Data Enhancement & Enrichment with Generative AI

<ul style="list-style-type: none"> Secured data platform Data Quality monitoring & enhancement ETL process 	<p style="text-align: right;">Portuguese</p> <p>Step 1: Original Summary Description from eReport EREP999-99* Est vamos em solo aguardando o estacionamento da acft da <i>Airline Name</i> A999* prefixo PT-EEE* conforme instru o do aeroporto, ao pousar a acft estava livrando na taxiway B</p>
<ul style="list-style-type: none"> Language detection Custom model on De-identification De-identified Text Translation to English 	<p>Step 2: Translated and de-identified Summary Report XX We were on the ground waiting for the #ENTITY# #ENTITY# acft to be parked prefix PT #ENTITY# as instructed by the airport upon landing the acft was freeing on taxiway B</p>
<ul style="list-style-type: none"> Gen-AI based Human Readable Text conversion Gen-AI based clean summary 	<p>Step 3: Human Readable Summary While waiting on the ground for an aircraft to park, the aircraft was instructed by the airport to free up taxiway B upon landing. The aircraft was then instructed to backtrack to free up taxiway B and taxiway A.....</p> <p>Step 4: Clean Summary The aircraft, while parking, failed to follow airport instructions to free up taxiways B and A, and entered the terminal area incorrectly, nearly colliding with another aircraft despite being signaled to stop.</p>
<ul style="list-style-type: none"> AI Topic Detection Entity / Tagging from Text Data Clustering for analysis & trends 	<p>Safety Topic: Compliance with Air Traffic Control Instructions</p> <p>Tags: Aviation Safety Ground Operations Air Traffic Control</p>

- Multi-Class Classification Model in development
- Dynamic ISIT for emerging trend detection

ISIT Code: 70012300
Parent Descriptor: Flight Operations
Event Type: Flight Path Management
Detected Descriptor: Taxi

Analysis and results presentation

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Human Validation

Human in the loop for verification, validation, testing and AI model enhancement.
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Generative AI

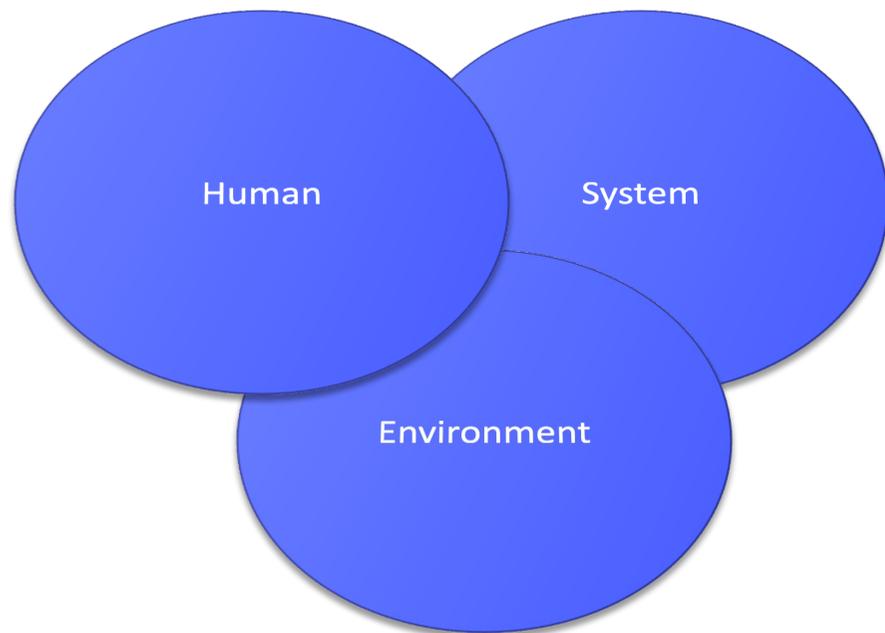
Secured and privately hosted Gen-AI model for data enhancement and enrichment.
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Dynamic ISIT

Automated ISIT mapping and classification for incident mapping. Dynamic ISIT detection process to detect new trends.



Threats



Thank you

"Humanity can enjoy a flourishing future with AI. Having succeeded in creating powerful AI systems, we can now enjoy an 'AI summer' in which we reap the rewards, engineer these systems for the clear benefit of all, and give society a chance to adapt."

*Technology researchers and leaders,
including Apple co-founder Steve
Wozniak*