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# Safety Information Monitoring System (SIMS)

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# Introduction

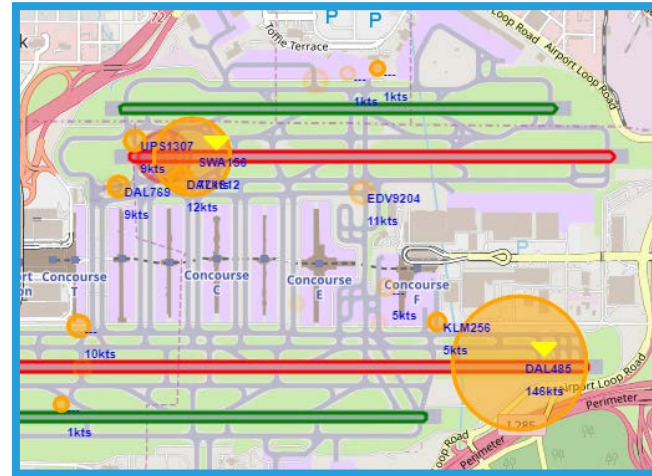
- **Today's objective:**
  - Present how we are connecting data to build safety intelligence
  - Show examples/potentials of the Safety Information Monitoring System (SIMS)
  - Encourage you to join SIMS



# Turning Data into Information

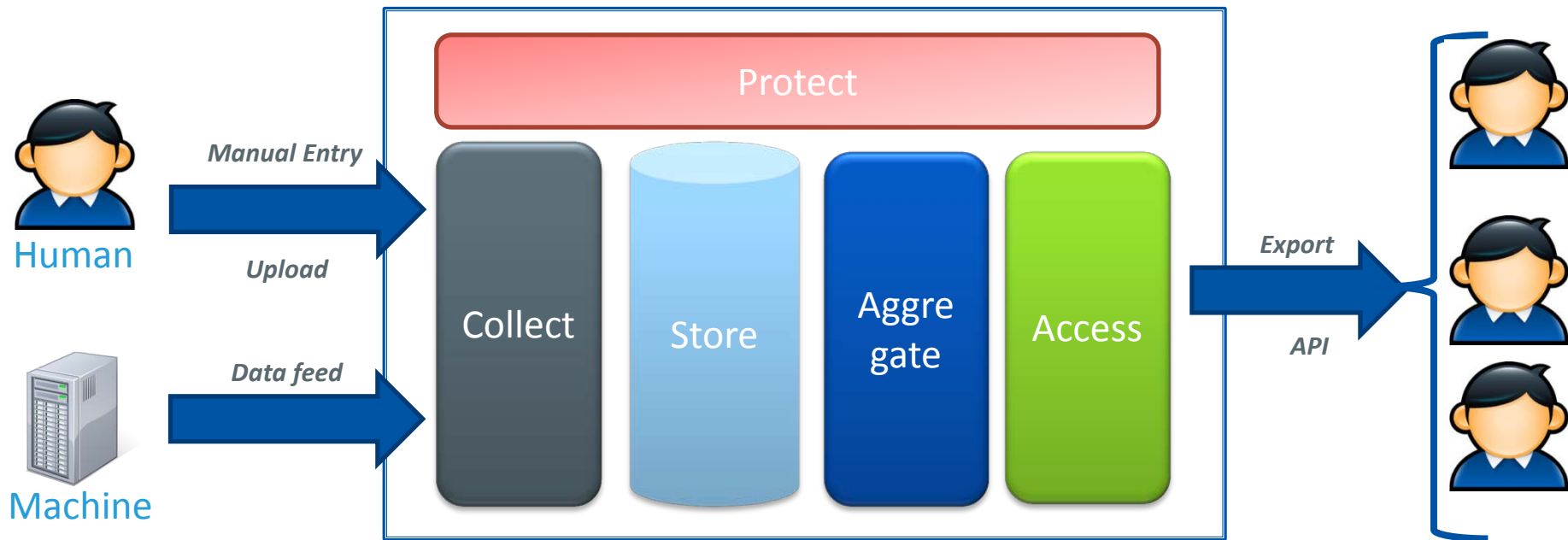
From raw data to information using automation

- **Aggregate** multiple sources (ADS-B ground)
- **Integrate** data into information
- **Visualize** the information for monitoring





# Data Processing





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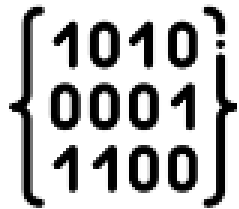
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# Main Components

The main components of every data processing system are:



*data*



*Indicator*



*system*



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# Is Data a Problem?

- What is data
  - Numbers, characters, symbols images
  - Raw data is unprocessed data
- Having not enough or too much data
- What it means if air traffic **doubles** in the next 15 years



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# What about your data?

- Collected data
  - Audits and inspections
  - Mandatory reporting systems
  - Voluntary reporting systems
- Recorded data
  - Flight Data Analysis
  - Radar, ADS-B





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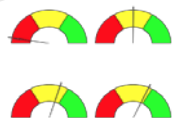
# SIMS

## Safety Information Monitoring System



**Connect**

(data, States, service providers)



**Monitor**

(performance, indicator,  
improvement)



**Identify**

(hazards, risks)



**Share**

(safety information)





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# SIMS Applications

## Monitor safety information



### Airspace Monitoring

The application allows for the monitoring of performance through horizontal flight efficiency (HFE) indicators. Indicators are calculated by FIR, using ADS-B positioning data.

The application also contains indicators related to airspace occurrences such as TCAS alerts.



### Approach Monitoring

The purpose of this application is to monitor vertical flight efficiency such as continuous descent operations (CDO).

For each airport, the application also monitors approach related events such as missed approaches.



### Occurrences

This application is using occurrences reported to States through their mandatory and voluntary reporting systems.

Indicators include number of severe occurrences as well as a reporting index.



### Runway Safety

The application monitors landings with tailwind exceeding 5 knots as well as other runway safety related leading indicators.



### Ramp Inspections

This application uses foreign ramp inspection data collected from inspecting States. The application allows for prioritization of ramp inspections and monitoring of air operator's compliance.



### ADS-B Coverage

This application allows for selection of any airspace and airport and determines the current ADS-B coverage of that zone. It is used to evaluate if an airspace or airport is suitable to be monitored under SIMS.



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# Indicators

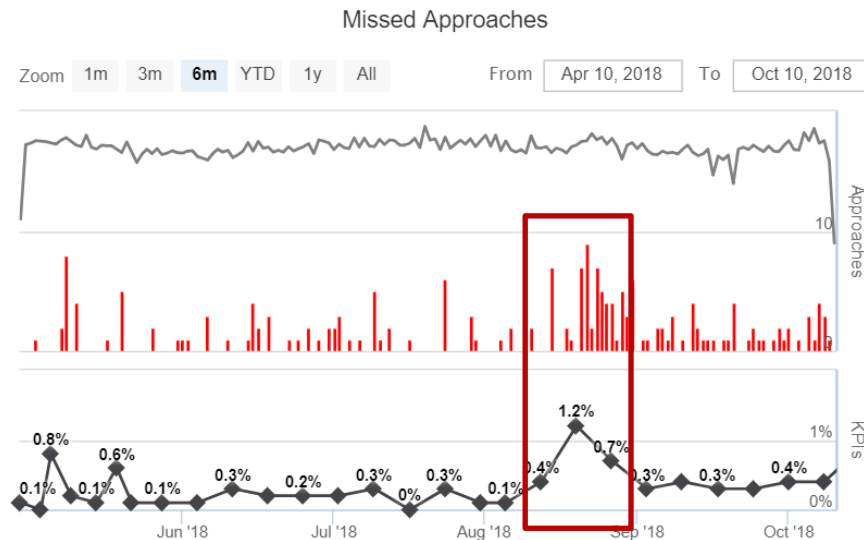
- An **indicator** is a measurement or value which helps decide whether a given **objective is met, or under control**.
- An indicator uses a **metric**, which is a specific **methodology** or algorithm, to calculate the value of the indicator.
- **Key Performance Indicators (KPIs)** are indicators which are used at senior levels of the organization to **track overall performance**, and define whether global targets are met.



# SIMS Example: Missed Approaches

## • What do you know?

- Indicator : % of missed approaches per day per landing
- Avg. 0.3 % weekly in last 6 months
- Sudden peak for 2 weeks
- No reports received



**What would you do?**



# Case Study : TCAS

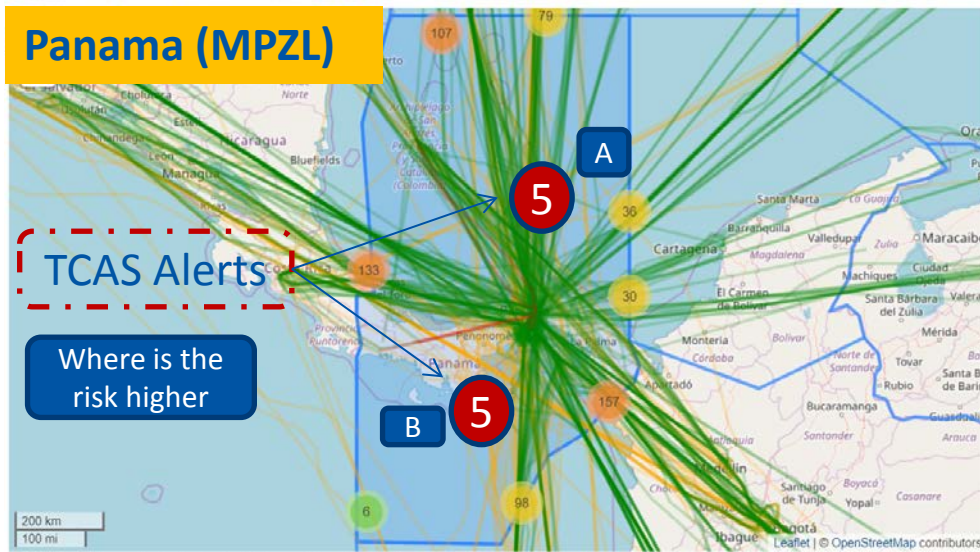
- **Data**
  - Received from States and airlines date, time in UTC, flight number, longitude, latitude, (type)
- **Indicator**
  - Number of TCAS per month
- **System**
  - Map visualization



But we can do more!



# Case Study : TCAS (cont'd)

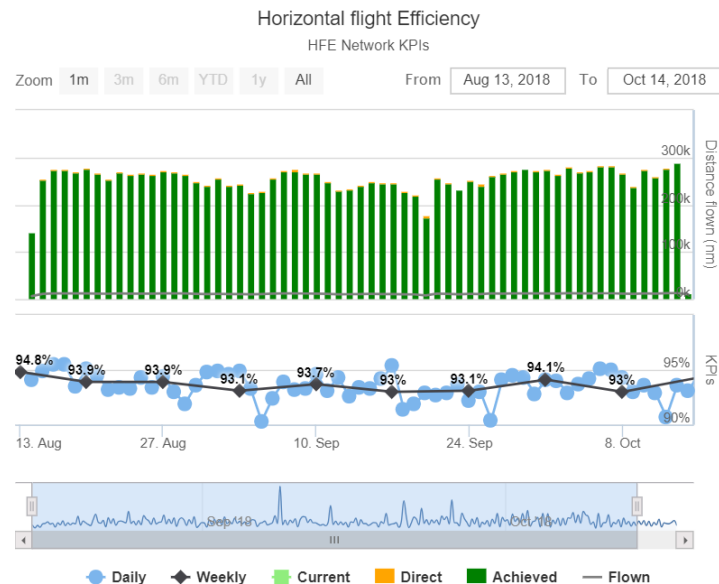


Overflights

133

Total Flights

546





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# New indicator for SIMS: LHD

- **Similar** situation as TCAS
- Connect **subset of data** to SIMS for airspace performance monitoring
- **Access** to safety information anytime
- Generate **more indicators** based on available data





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# The meeting is invited to:

**Encourage** the States/Territories/International Organizations responsible for the provision of ATS services in the CAR/SAM Regions, **to connect to SIMS**, of ICAO, **for the continuous monitoring of their safety performance.**



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Thank you

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for more information on how to join SIMS