OACI

ORGANIZACIÓN DE AVIACIÓN CIVIL INTERNACIONAL

ORGANISMO ESPECIALIZADO DE LA ONU

SAFETY DATA COLLECTION AND PROCESSING SYSTEMS (SDCPS)

Uwe David Cano Navarro

Safety Management Coordinator

INAC/Nicaragua

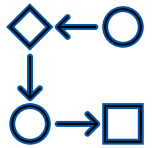
SUMMARY

Introduction

Objective

Collection

Processing



Exercises

Introduction

Introduction

Annex 19 5.1.1 States shall establish systems for the Safety Data Collection and Processing Systems (SDCPS) to capture, store, aggregate, and enable the analysis of data and information on safety.

Objectives

- *Review the established guidelines in document 9859.*
- *Evaluate existing capabilities to start a data collection system.*
- *Conceptually design a SDCPS.*

Value of data in aviation

Data is valuable because it helps in problem-solving, making forecasts, or monitoring the efficiency of solutions.

Data supports decision-making known as "data-driven decision making."

Safety data. *A defined set of operational safety facts or values collected from various aviation-related sources, which is used to maintain or improve operational safety.*

Operational safety information. *Operational safety data, organized or analyzed in a specific context so that they are useful for operational safety management purposes.*

Safety data is transformed into operational safety information when it is processed, organized, integrated, or analyzed in a certain context so that it is useful for operational safety management purposes.

Operational safety information can continue to be processed in different ways to extract different meanings.

Reliable data and information on operational safety are necessary to identify trends, make decisions, and evaluate performance in operational safety in relation to operational safety goals and objectives, as well as to assess relevant risks.

The organization should ensure that each SDCPS has a designated custodian to implement data protection and operational security information, as well as related sources.

OACI

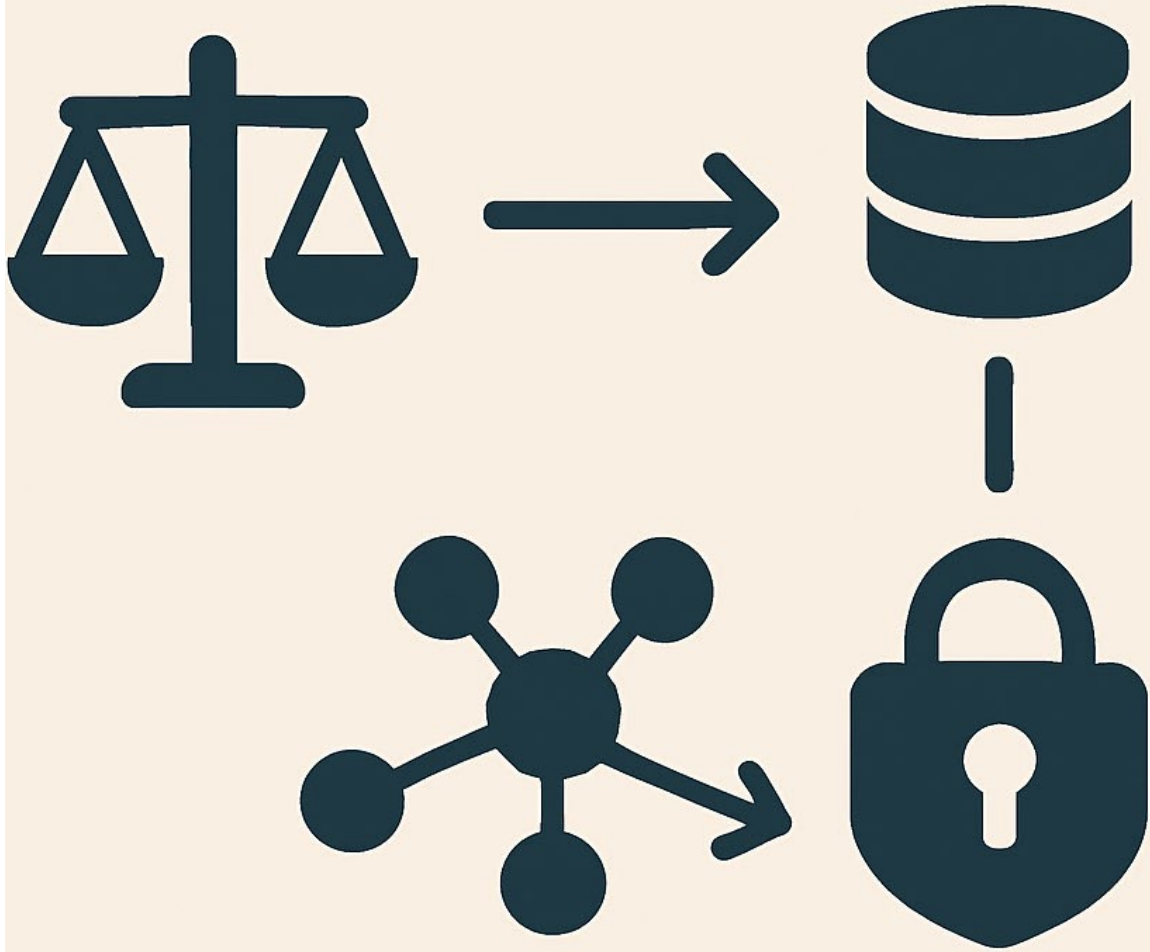
02

Data collection

Annex 19 requires States to establish SDCPS to capture, store, aggregate, and allow the analysis of data and information on operational safety to support hazard identification throughout the aviation system.

The States must also implement:

- Laws
- Regulations
- Processes and procedures



OACI

Each organization must determine what data and information on operational safety it needs to collect to support the operational safety performance management process and make decisions in that regard.

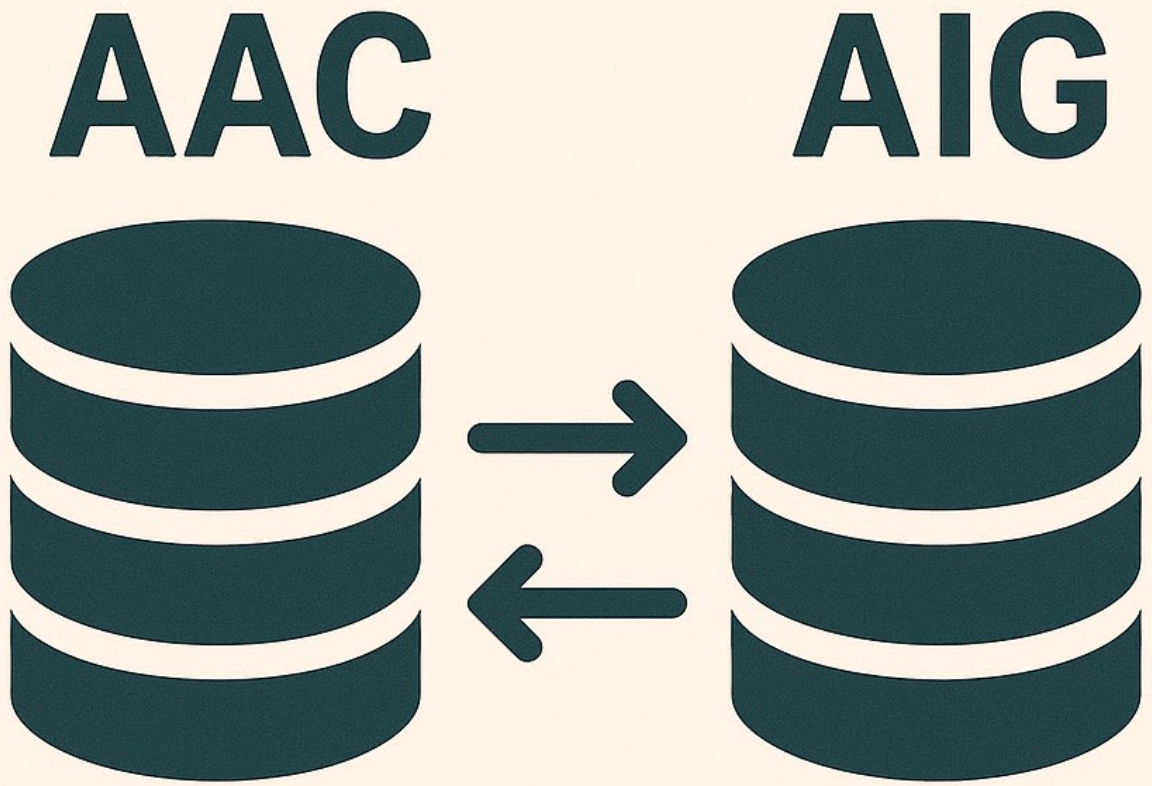
OACI

In some cases, the SRM process will highlight the need for additional operational safety data to better assess the consequences (level of probability and severity) and determine the associated risks.

OACI

States and service providers should consider adopting an integrated approach to the collection of operational safety data from various sources, both internal and external.

The state authorities responsible for enforcing the SSP should have access to the database of accidents and incidents in support of their functional responsibilities regarding operational safety. Additional information to support preventive measures may be included in the final reports on accidents and incidents that have been investigated.



Operational safety investigations by state authorities or aviation service providers.

The conduct of operational safety investigations is encouraged, aside from those mandated by Annex 13, as they produce useful operational safety information to support performance improvement.

OACI

Mandatory notifications

The notification systems developed by States and service providers should be as simple as possible regarding the access, generation, and presentation of mandatory notifications. The mandatory operational safety notification systems should focus on capturing all valuable information about an event, in order to generate statistics that contribute to decision-making.

Voluntary notifications

Voluntary safety reporting systems to collect data and information on operational safety not captured by the mandatory operational safety reporting system. These reports go beyond the typical incident notification. Voluntary reports tend to highlight latent conditions, such as inappropriate safety procedures or regulations, human errors, etc.

Results of inspections, audits or studies

The results of the interactions between state representatives and service providers, such as inspections, audits, or studies, can also be useful for the gathering of data and information on operational safety. The data and information on operational safety from these interactions can be used as evidence of the effectiveness of the oversight program itself.

TAXONOMIES

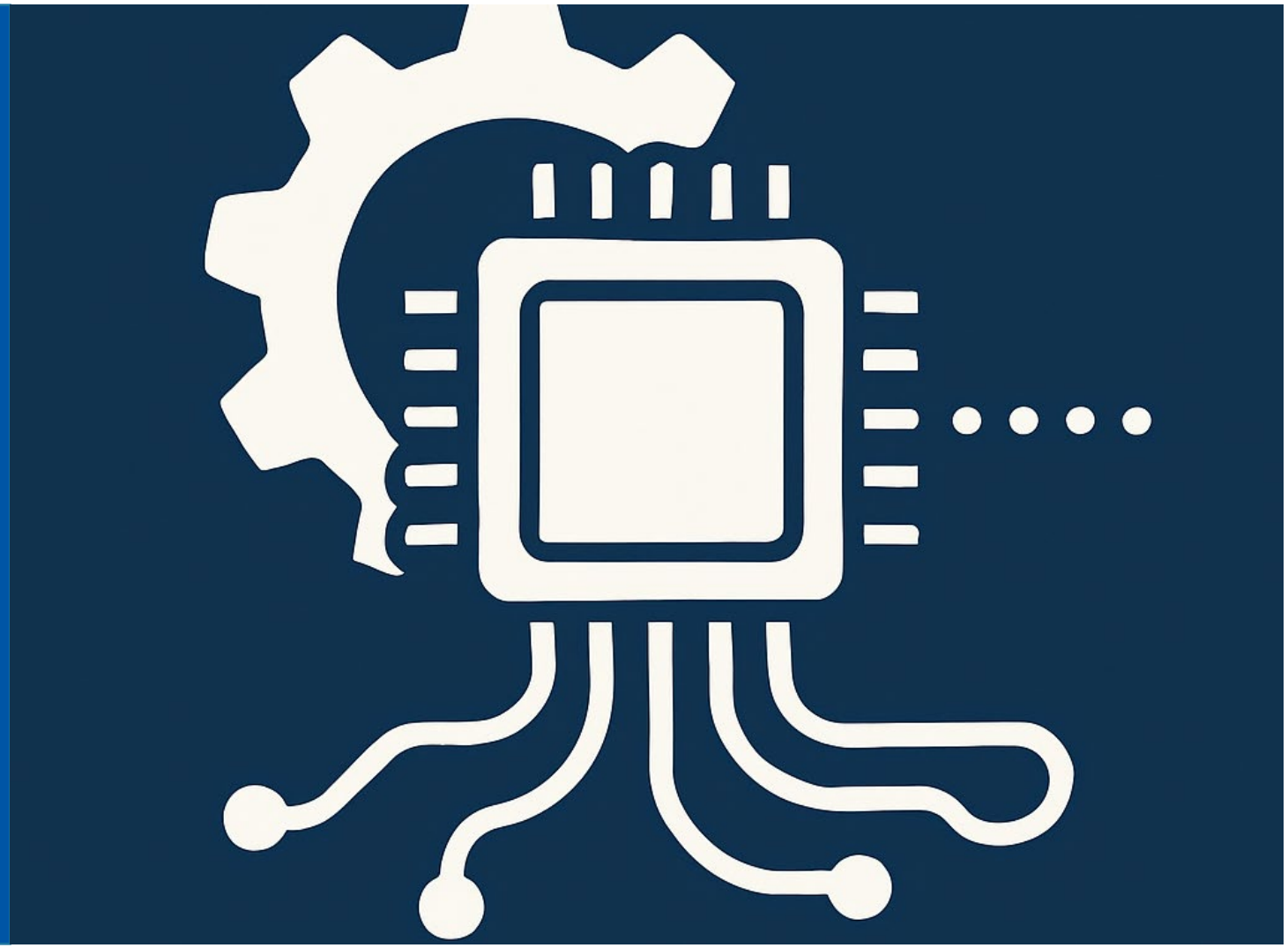
Operational safety data should ideally be categorized using supporting taxonomies and definitions so they can be captured and stored using meaningful terms. Common taxonomies and definitions establish a standard language, improving the quality of information and communication. The aviation community's ability to focus on operational safety issues is significantly enhanced if a common language is shared.

Challenges with data collection

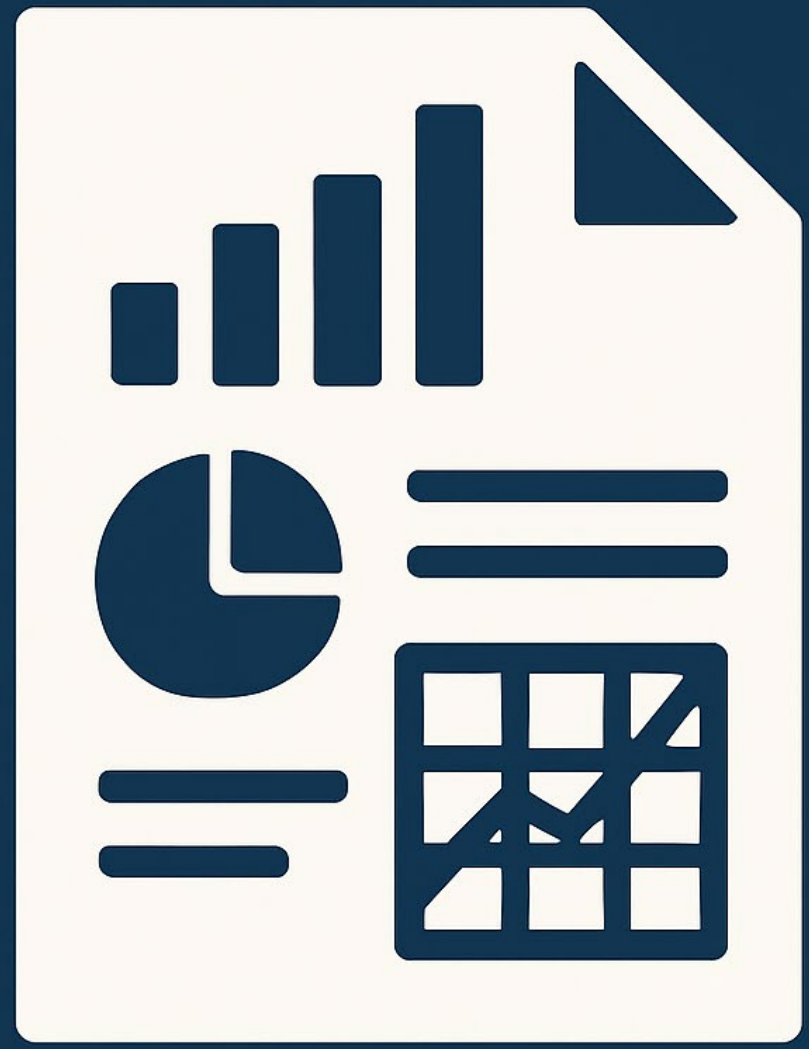
- Lack of clarity regarding the need for data
- Incomplete data
- Inaccurate data
- Absence of regulation and policies
- Lack of standardization of data
- Abundance of data
- Insufficiency of data
- Unawareness of the source of data
- No formats for data collection

03

Processing



The processing of operational safety data refers to the handling of this data to produce meaningful operational safety information in useful formats such as diagrams, reports, or tables.



OACI

The quality of data is related to clean and suitable data for its purpose. The quality of data involves the following aspects:

a) cleanliness;

b) b) relevance;

c) c) timeliness; and

d) d) accuracy and correctness.

OACI

Cleaning

It is the process of detecting and correcting (or eliminating) corrupt or inaccurate records from a dataset, table, or database, and it refers to identifying incomplete, incorrect, inaccurate, or irrelevant parts of the data to subsequently replace, modify, or suppress the dirty or crude data.

OACI

Pertinencia

Son aquellos que satisfacen las necesidades de la organización y representan sus aspectos más importantes. Una organización debería evaluar la pertinencia de los datos sobre la base de sus necesidades y actividades.

OACI

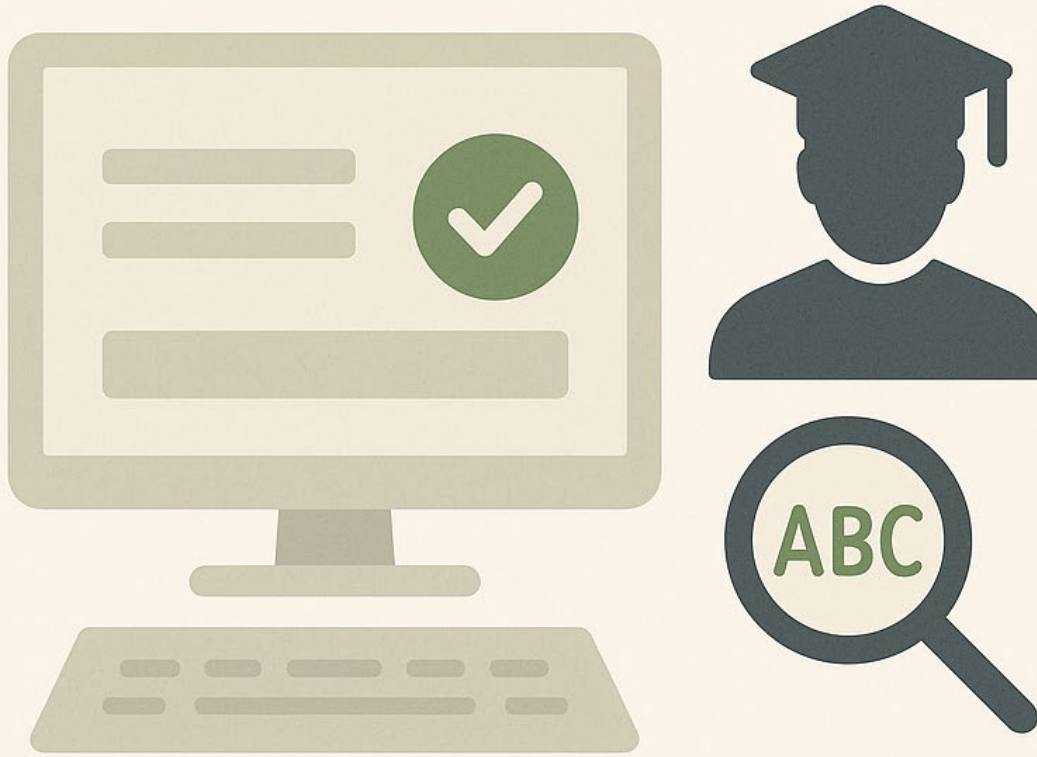
Opportunity

It is based on its timeliness. The data used to make decisions should reflect what is happening as close to real time as possible. Good judgment is often required based on the volatility of the situation.

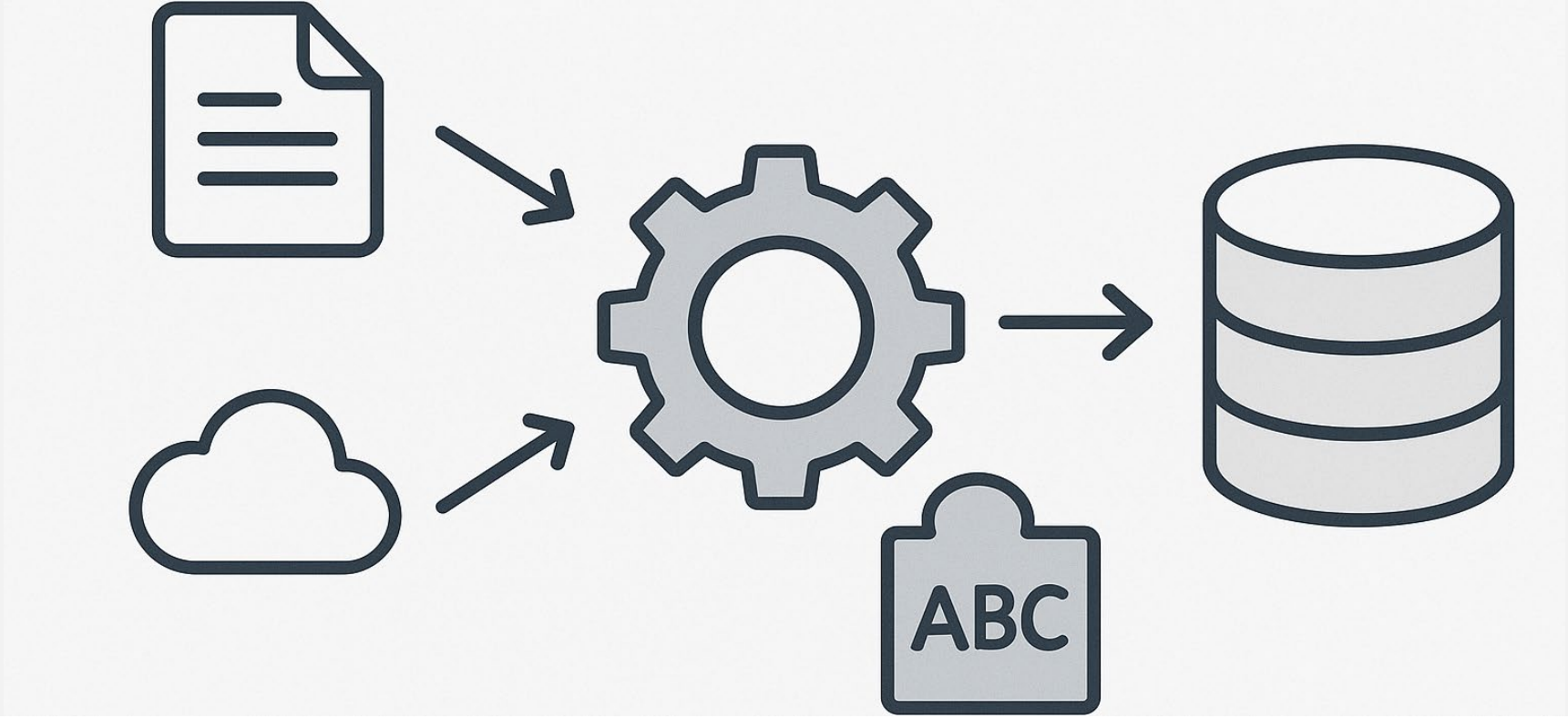
OACI

Accuracy

It refers to values that are correct and reflect the determined scenario as described. The inaccuracy of the data usually occurs when users enter an incorrect value or make a typographical error. This problem can be solved if there is qualified and trained personnel for data entry or if there are components in the application such as spell check.



OACI



Data aggregation

Data aggregation can sometimes be useful for multiple organizations or regions that do not have enough data to ensure proper non-identification in order to protect data sources and information about operational security, as well as to support analyses.

Gracias!

OACI

Exercise 1

1. Form working groups.
2. Pose a problem or challenge within a civil aviation authority.
3. According to the list of data sources, select all those that can contribute to overcoming the institutional problem.
4. Choose one of the data sources and create an Excel file.
5. Identify what data is necessary for a good analysis.
6. Define who is responsible for providing the data.
7. Establish the frequency of obtaining the data.
8. Verify availability and organization of the data.
9. Define activities to be able to access the data.