



ICAO

UNITING AVIATION

# Module 1 USOAP and SSP

M. Merens

IAA, Air Navigation Bureau



## Reporting Provisions

- **Dangerous good incidents**
- **Unapproved airworthiness parts**
- **Incidents (voluntary)**
- **Accidents and serious incidents**
- **RVSM height deviations**
- **Air traffic incidents**



## SSP Reporting

- **Element 3.2 : Safety data collection, analysis and exchange**
  - The State has established mechanisms to ensure the capture and storage of data on hazards and safety risks at both an individual and aggregate State level. The State has also established mechanisms to develop information from the stored data, and to actively exchange safety information with service providers and/ or other States as appropriate.



## **USOAP Occurrence Database Questions**

- **Has the State established an accident and incident database to facilitate the effective analysis of information obtained, including information drawn from its incident reporting systems? (6.507)**
- **Is the database created in a standardized format to facilitate data exchange? (6.509)**
- **Does the State analyse the information contained in its accident/ incident reports and the database to determine any required preventive actions? (6.511)**



## USOAP Occurrence Reporting

- Has the State established and implemented (through the necessary legislation, procedures and guidance to the industry) a **mandatory incident reporting system** to facilitate the collection of information on actual or potential safety deficiencies? (6.501)
- Has the State established and implemented (through the necessary legislation, procedures and guidance to the industry) a **voluntary incident reporting system**, managed at the State level, to facilitate the collection of information that may not be captured by a mandatory incident reporting system? (6.503)



# Effective Implementation

World

39%

73%

SAM

World

SAM

- Has the State established and implemented (through the necessary legislation, procedures and guidance to the industry) a **mandatory incident reporting system** to facilitate the collection of information on actual or potential safety deficiencies? (6.501)
- Has the State established and implemented (through the necessary legislation, procedures and guidance to the industry) a **voluntary incident reporting system**, managed at the State level, to facilitate the collection of information that may not be captured by a mandatory incident reporting system? (6.503)

52%

85%

27%

62%



# USOAP Reporting PQs EI

State	▲ EI(%)	◆	6.501	◆	6.503	◆
ARG - Argentina	50					
BOL - Bolivia (Plurinational State of)	100					
BRA - Brazil	100					
CHL - Chile	100					
COL - Colombia	50					
ECU - Ecuador	100					
GUY - Guyana	50					
PAN - Panama	50					
PER - Peru	100					
PRY - Paraguay	100					
SUR - Suriname	50					
URY - Uruguay	50					
VEN - Venezuela (Bolivarian Republic of)	50					

Showing 1 to 13 of 13 entries



# Effective Implementation

WORLD

41%

82%

SAM

WORLD

SAM

- **Has the State established an accident and incident database to facilitate the effective analysis of information obtained, including information drawn from its incident reporting systems? (6.507)**
- **Is the database created in a standardized format to facilitate data exchange? (6.509)**
- **Does the State analyse the information contained in its accident/ incident reports and the database to determine any required preventive actions? (6.511)**

42%

77%

40%

83%

41%

85%



# USOAP Database PQs

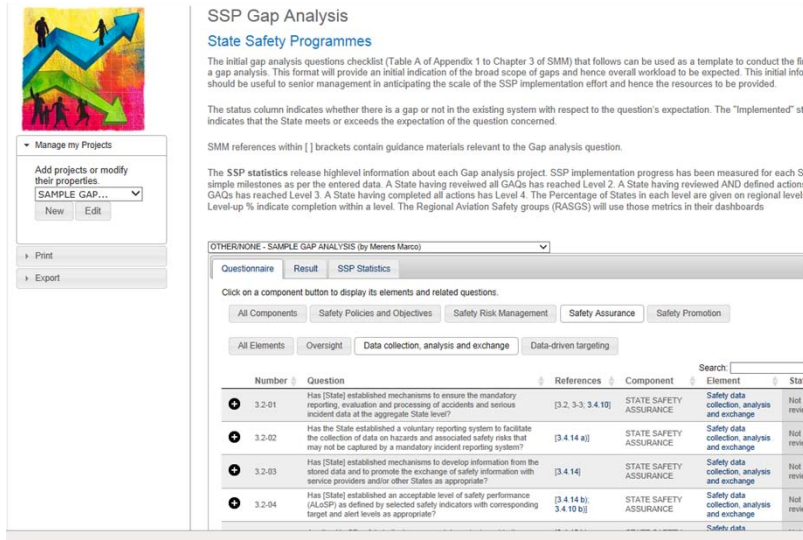
State	▲ EI(%)	6.507	6.509	6.511
ARG - Argentina	100	Green		
BOL - Bolivia (Plurinational State of)	100	Green		
BRA - Brazil	100	Green		
CHL - Chile	100	Green		
COL - Colombia	100	Green		
ECU - Ecuador	100	Green		
GUY - Guyana	100	Green	Grey	Green
PAN - Panama	33.33	Red	Green	Red
PER - Peru	33.33	Red		Green
PRY - Paraguay	100	Green		
SUR - Suriname	33.33	Red	Green	Red
URY - Uruguay	66.67	Green	Red	Green
VEN - Venezuela (Bolivarian Republic of)	100	Green		

Showing 1 to 13 of 13 entries



# iSTARS Tools

- PQ Tester to find relevant USOAP Questions
- SSP GAP Analysis to find relevant SSP elements and questions



**SSP Gap Analysis**  
State Safety Programmes

The initial gap analysis questions checklist (Table A of Appendix 1 to Chapter 3 of SMM) that follows can be used as a template to conduct the first gap analysis. This format will provide an initial indication of the broad scope of gaps and hence overall workload to be expected. This initial info should be useful to senior management in anticipating the scale of the SSP implementation effort and hence the resources to be provided.

The status column indicates whether there is a gap or not in the existing system with respect to the question's expectation. The "Implemented" status indicates that the State meets or exceeds the expectation of the question concerned.

SMM references within [ ] brackets contain guidance materials relevant to the Gap analysis question.

The SSP statistics release highlevel information about each Gap analysis project. SSP Implementation progress has been measured for each State simple milestones as per the entered data. A State having reviewed all GAGs has reached Level 2. A State having reviewed AND defined actions GAGs has reached Level 3. A State having completed all actions has Level 4. The Percentage of States in each level are given on regional levels. Level-up % indicate completion within a level. The Regional Aviation Safety groups (RASGS) will use those metrics in their dashboards

OTHERNONE - SAMPLE GAP ANALYSIS (by Merens Marco)

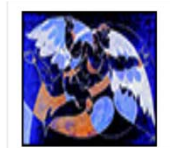
Questionnaire Result SSP Statistics

Click on a component button to display its elements and related questions.

All Components Safety Policies and Objectives Safety Risk Management Safety Assurance Safety Promotion

All Elements Oversight Data collection, analysis and exchange Data-driven targeting

Number	Question	References	Component	Element	State
3.2-01	Has [State] established mechanisms to ensure the mandatory reporting, evaluation and processing of accidents and serious incident data at the aggregate State level?	[3.2, 3.3, 3.4.10]	STATE SAFETY ASSURANCE	Safety data collection, analysis and exchange	Not review
3.2-02	Has the State established a voluntary reporting system to facilitate the collection of data on hazards and associated safety risks that may not be captured by a mandatory incident reporting system?	[3.4.14 a)]	STATE SAFETY ASSURANCE	Safety data collection, analysis and exchange	Not review
3.2-03	Has [State] established mechanisms to develop information from the stored data and to promote the exchange of safety information with service providers and/or other States as appropriate?	[3.4.14]	STATE SAFETY ASSURANCE	Safety data collection, analysis and exchange	Not review
3.2-04	Has [State] established an acceptable level of safety performance (ALSP) as defined by selected safety indicators with corresponding target and alert levels as appropriate?	[3.4.14 b), 3.4.10 b)]	STATE SAFETY ASSURANCE	Safety data collection, analysis and exchange	Not review



Export to CSV

- Export the full list of PQs
- Export the PQ test results
- Export the results by State

**PQ Tester**  
USOAP Protocol Questions

This apps allows you to test the status of any protocol question across multiple States. Results can be viewed by PQ as well as by State (tab #2)

Just select a few PQs using the checkboxes in the list below, a region or State you want to test and click "run test". The results will be displayed in the table. You can export the results by using the menu on the left

Protocol Questions Test Results by State

Select a test group and some protocol questions to test

World Show selected PQs only

View group composition

Area filter: All LEG ORG PEL OPS AIR AIG ANS AGA

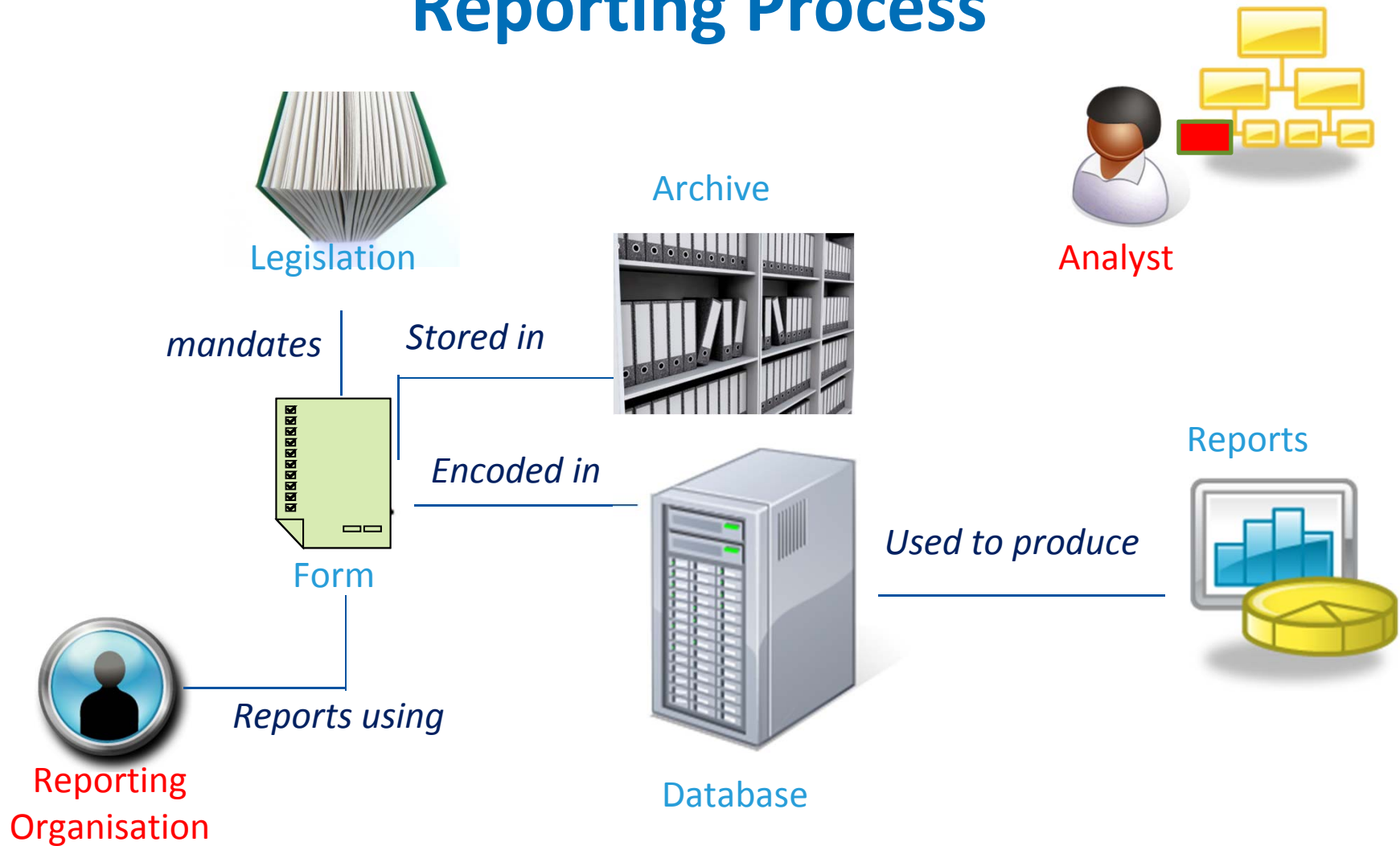
CE filter: All CE-1 CE-2 CE-3 CE-4 CE-5 CE-6 CE-7 CE-8

Run Test

Number	Question	CE	References	PQ EI (%)	S/U/N	Applicability (%)	Toggle
1.001	Has the State promulgated primary aviation legislation (including civil aviation acts, laws, decrees, resolutions, etc.) to enable it to address its obligations as a signatory to the Chicago Convention?	1	LEG	---	---	---	<input type="checkbox"/>
1.005	Does the primary aviation legislation provide for the introduction/adoption and subsequent promulgation of civil aviation regulations?	1	LEG	---	---	---	<input type="checkbox"/>
1.007	Does the State's rule-making process ensure the timely promulgation of specific operating regulations in compliance	2	LEG	---	---	---	<input type="checkbox"/>



# Reporting Process



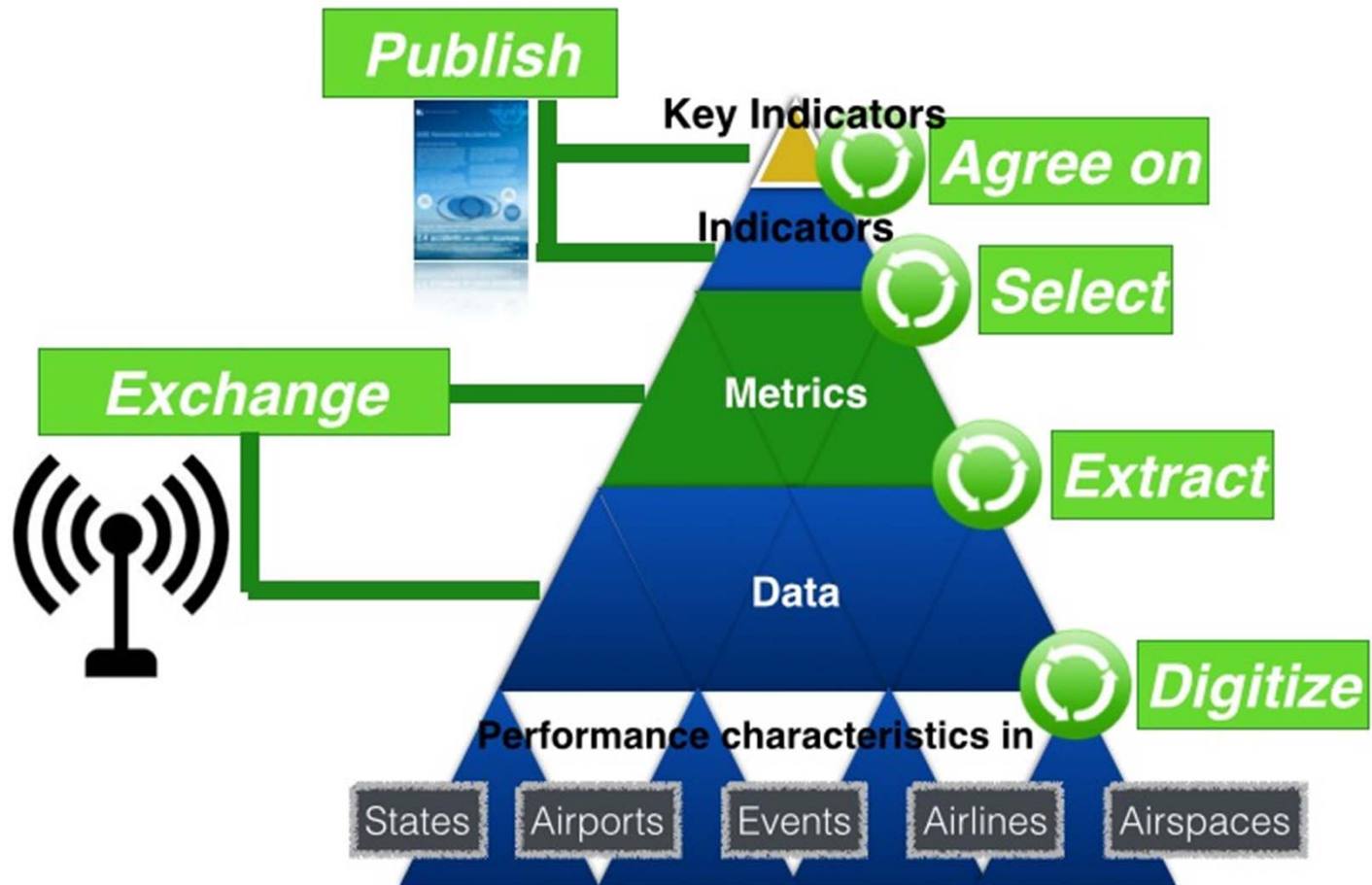


## SSP SPI

- **The State should**
  - Establish lower consequence safety and/or quality indicators with appropriate target and alert monitoring (mature ALoSP).
  - Safety indicators development and selection should be congruent to the State's safety objectives and safety policy.
  - They should be appropriate and relevant to the scope and complexity of the State's aviation activities.
  - Periodic monitoring of the safety indicators for any undesirable trends, alert level breaches and target achievement should be performed.

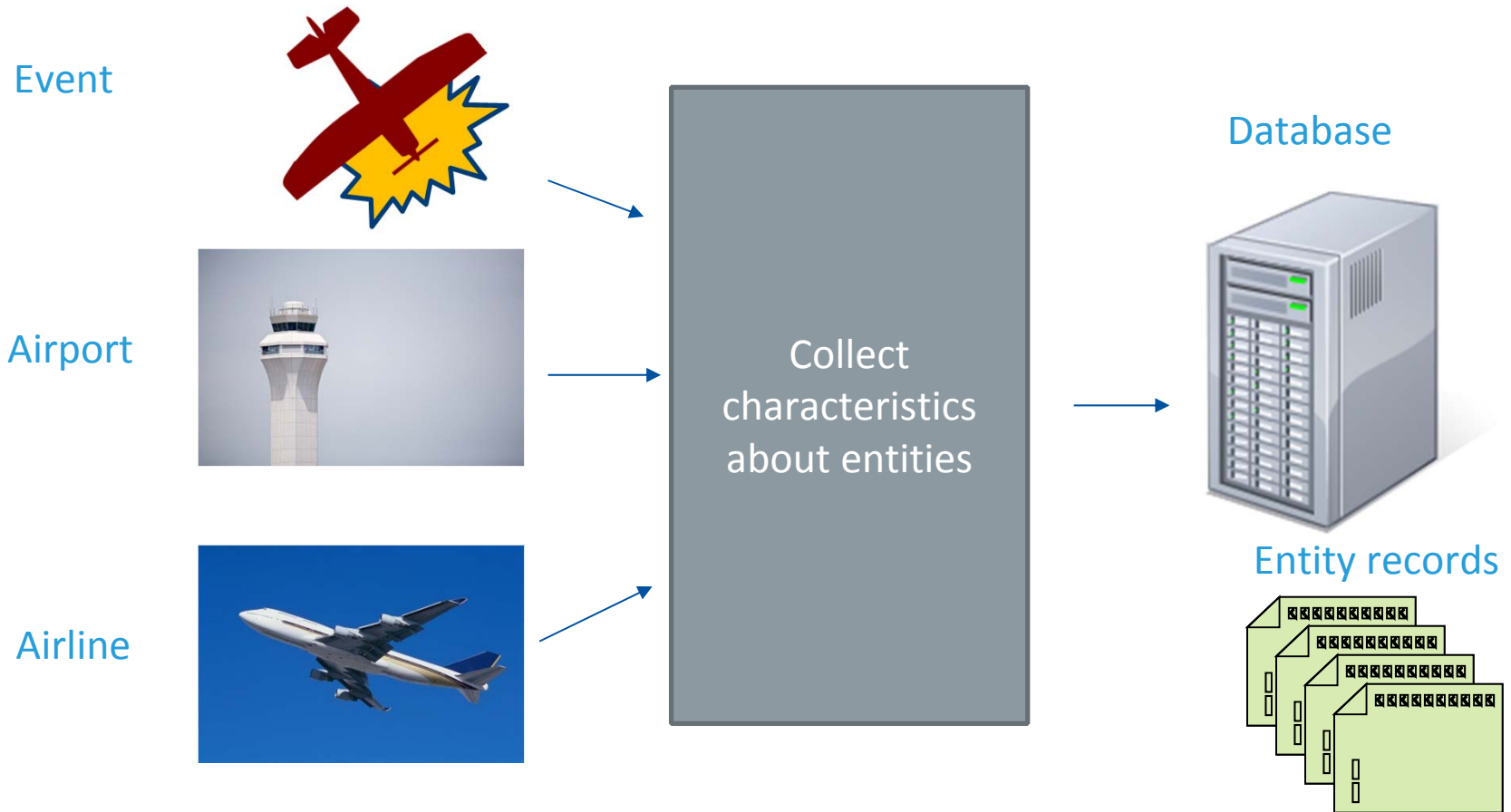


# SPI Pyramid



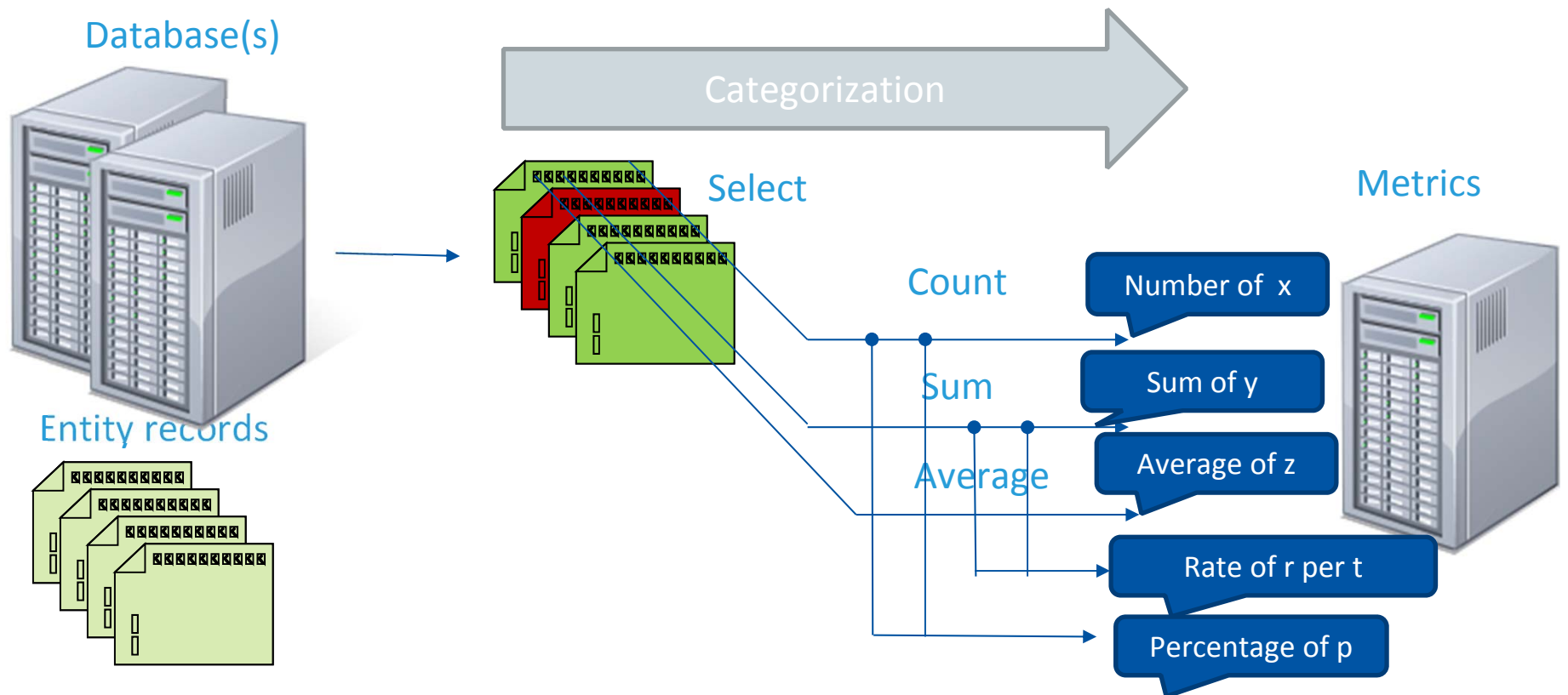


# Digitization





# Building Metrics





# Metrics catalogue

- Keep you metrics in one place
- Publish the metrics for transparency and reusability

INTERNATIONAL CIVIL AVIATION ORGANIZATION  
A United Nations Specialized Agency

ICAO > Safety > METRICS CATALOGUE

### METRICS CATALOGUE

ICAO provides access to its metrics via [REST APIs](#). The list of resources and metrics is provided here under. For information on how to access and use those metrics, please consult the [REST API page](#). You can also view the metrics on a map using our [Map Builder application](#).

### Resources

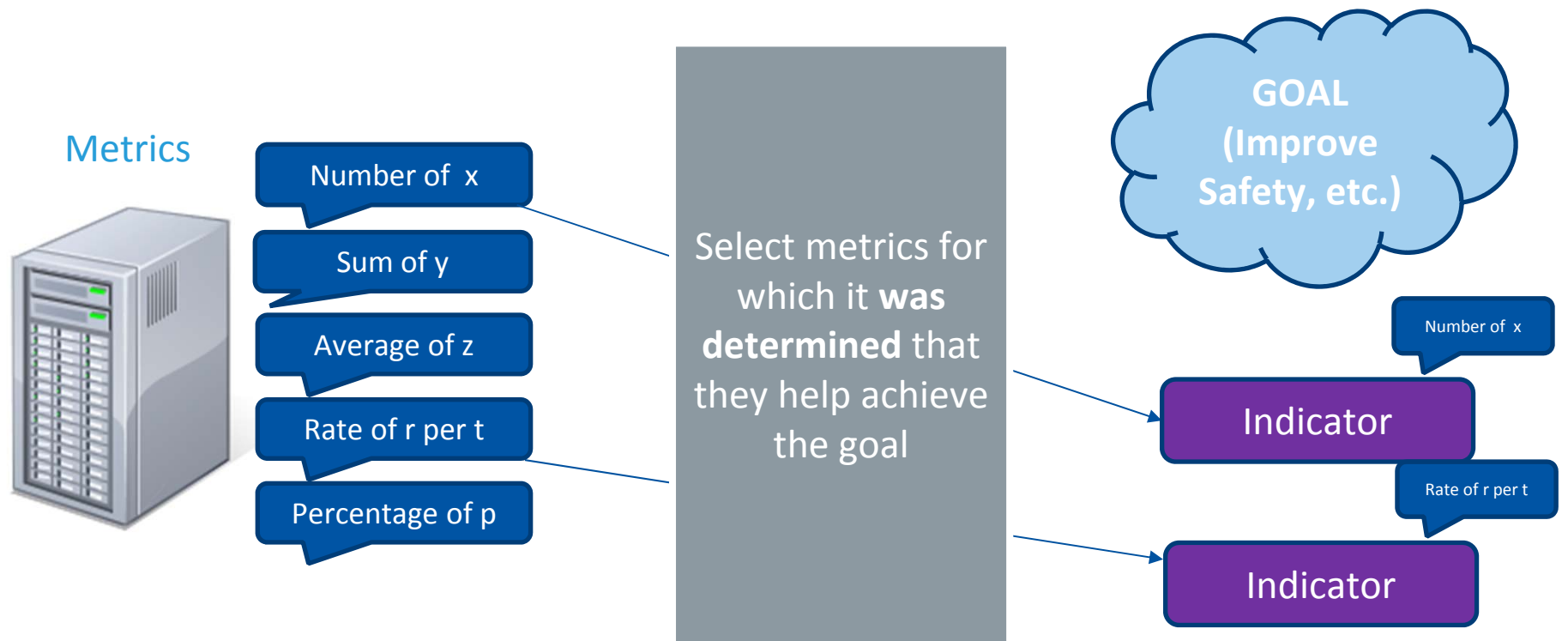
Metrics are bundled into resources. Resources resolve in unique URLs which when called, return all the metrics contained in the bundle. See the [REST API page](#) for more details. All available resources listed here under. Select a resource to see the included metrics. Click on the name of a resource to get more information about it like the source or the update frequency.

The [download link](#) can be used to quickly get the current (no history) full data for the World in CSV format. A valid API Key will be needed. Check out the Try-it section at the end of this page for more options.

Select	Name	Description	Resource
<input checked="" type="checkbox"/>	<a href="#">Significant Safety concerns</a>	Bundle of 7 USOAP Significant Safety Concern State-related metrics containing current SSC status (Yes/No) and total number of SSCs and number of SSCs per technical area See: <a href="#">USOAP Safety Audit Information</a>	<a href="#">Download CSV</a>
<input type="checkbox"/>	<a href="#">USOAP Effective</a>	Bundle of 17 USOAP State-related metrics containing current and historic Overall Effective Implementation (EI). EI by technical area	<a href="#">Download</a>



# Indicators



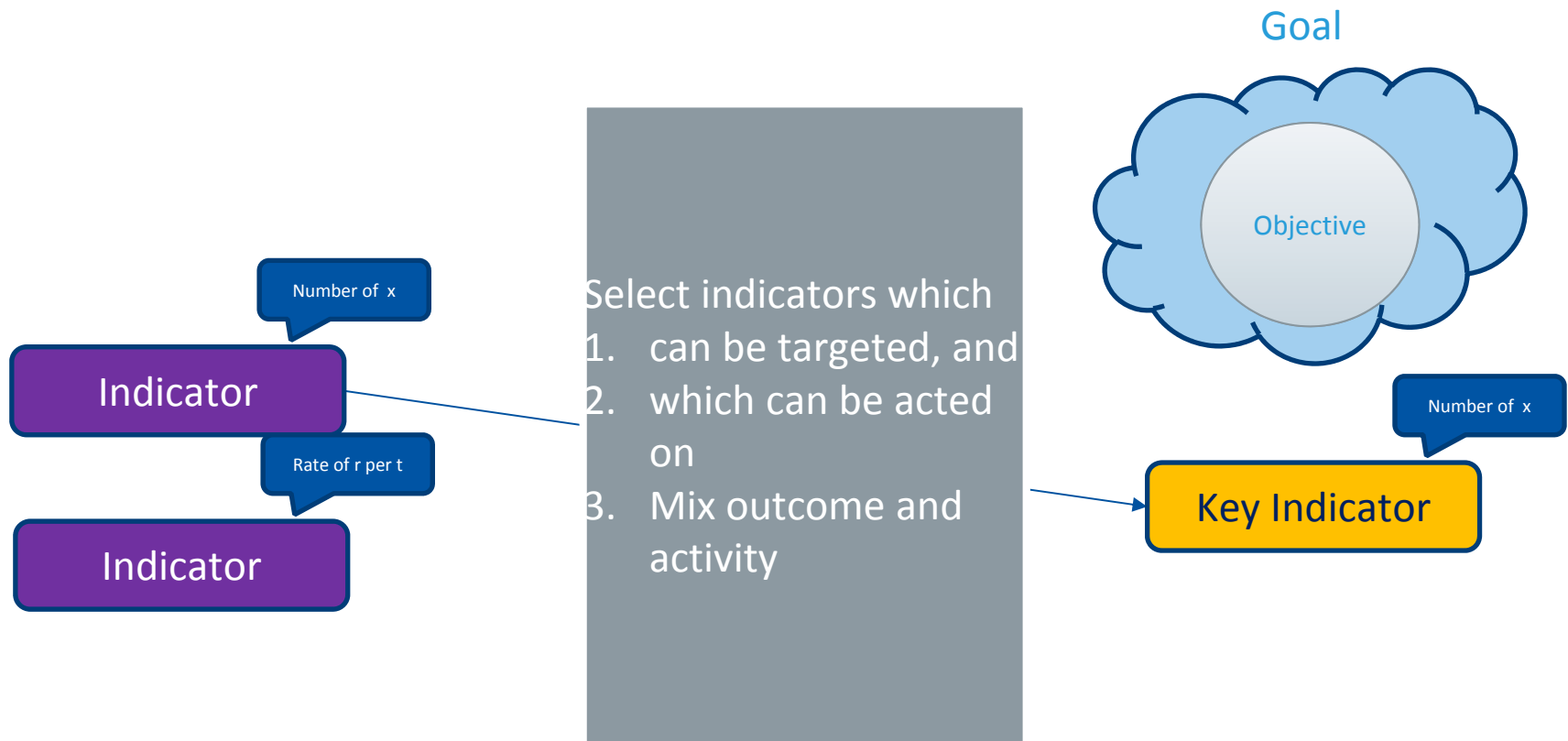


## Indicator Types

- **Activities indicators** are designed to help identify whether enterprises/organisations are taking actions believed to lower risks
  - Audit score
  - Inspection results
- **Outcome indicators** are designed to help measure whether such actions are, in fact, leading to less likelihood or severity of an accident occurring
  - Number of fatalities
  - Accident rate

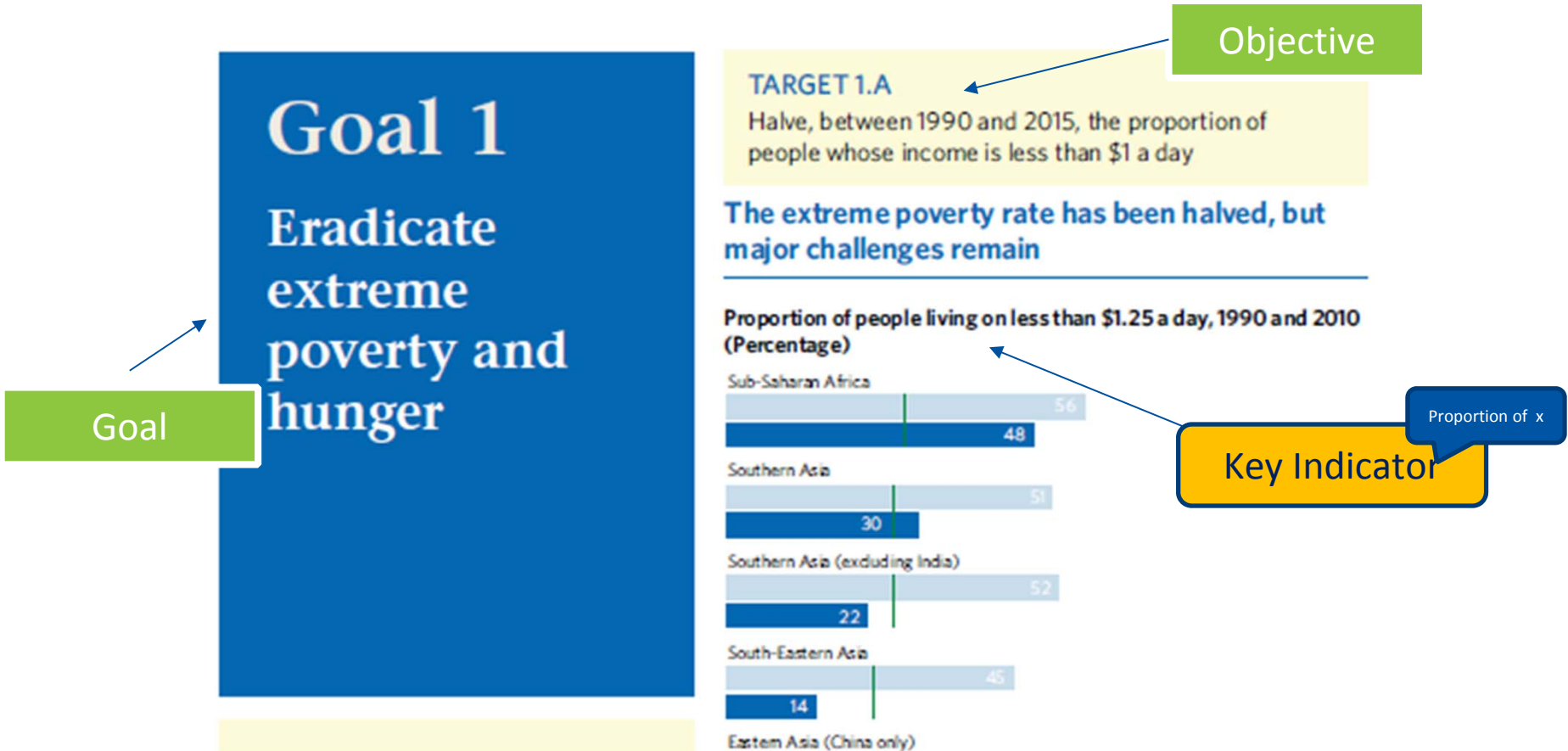


# Key Indicators





# Example: Millennium Indicators





# Example: Millennium Indicators

Millennium Development Goals (MDGs)	
Goals and Targets (from the Millennium Declaration)	Indicators for monitoring progress
<b>Goal 1: Eradicate extreme poverty and hunger</b>	
Target 1.A: Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day	1.1 Proportion of population below \$1 (PPP) per day <sup>a</sup> 1.2 Poverty gap ratio 1.3 Share of poorest quintile in national consumption
Target 1.B: Achieve full and productive employment and decent work for all, including women and young people	1.4 Growth rate of GDP per person employed 1.5 Employment-to-population ratio 1.6 Proportion of employed people living below \$1 (PPP) per day 1.7 Proportion of own-account and contributing family workers in total employment
Target 1.C: Halve, between 1990 and 2015, the proportion of people who suffer from hunger	1.8 Prevalence of underweight children under-five years of age 1.9 Proportion of population below minimum level of dietary energy consumption
<b>Goal 2: Achieve universal primary education</b>	
Target 2.A: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	2.1 Net enrolment ratio in primary education 2.2 Proportion of pupils starting grade 1 who reach last grade of primary 2.3 Literacy rate of 15-24 year-olds, women and men
<b>Goal 3: Promote gender equality and empower women</b>	
Target 3.A: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015	3.1 Ratios of girls to boys in primary, secondary and tertiary education 3.2 Share of women in wage employment in the non-agricultural sector 3.3 Proportion of seats held by women in national parliament
<b>Goal 4: Reduce child mortality</b>	
Target 4.A: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate	4.1 Under-five mortality rate 4.2 Infant mortality rate 4.3 Proportion of 1 year-old children immunised against measles
<b>Goal 5: Improve maternal health</b>	
Target 5.A: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio	5.1 Maternal mortality ratio 5.2 Proportion of births attended by skilled health personnel
Target 5.B: Achieve, by 2015, universal access to reproductive health	5.3 Contraceptive prevalence rate



ICAO | UNITING AVIATION



ICAO

North American  
Central American  
and Caribbean  
(NACC) Office  
Mexico City

South American  
(SAM) Office  
Lima

ICAO  
Headquarters  
Montréal

Western and  
Central African  
(WACAF) Office  
Dakar

European and  
North Atlantic  
(EUR/NAT) Office  
Paris

Middle East  
(MID) Office  
Cairo

Eastern and  
Southern African  
(ESAF) Office  
Nairobi

Asia and Pacific  
(APAC) Sub-office  
Beijing

Asia and Pacific  
(APAC) Office  
Bangkok



THANK YOU