



Safety Data Management

July 11, 2023





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INTRODUCTION



Safety In Aviation

- Capture Data flows from:
 - Operations
 - Organizational Behavior
 - Other (Economics, external, etc...)
- Data Analysis for:
 - Early detection of concerns
- Evolution of monitoring from “Compliance Mode” to “Performance Mode”:
 - from complying with the regulations and procedures to become more efficient in predicting future hazards and improving the safety within aviation.

DO WE NEED A DATA MANAGEMENT?



DATA --- MANAGEMENT

It is the practice of ingesting, processing, securing and storing organizations data, where it is then utilized for strategic decision-making to improve organizations outcomes.

*(IBM Definition)



- Developing data management that could store and process data and information.
- Quick and efficient workflow.
- Enabling organizations to make faster, better-informed, and quality decisions.

Objectives



Safety Data Management



SAFETY DATA MANAGEMENT





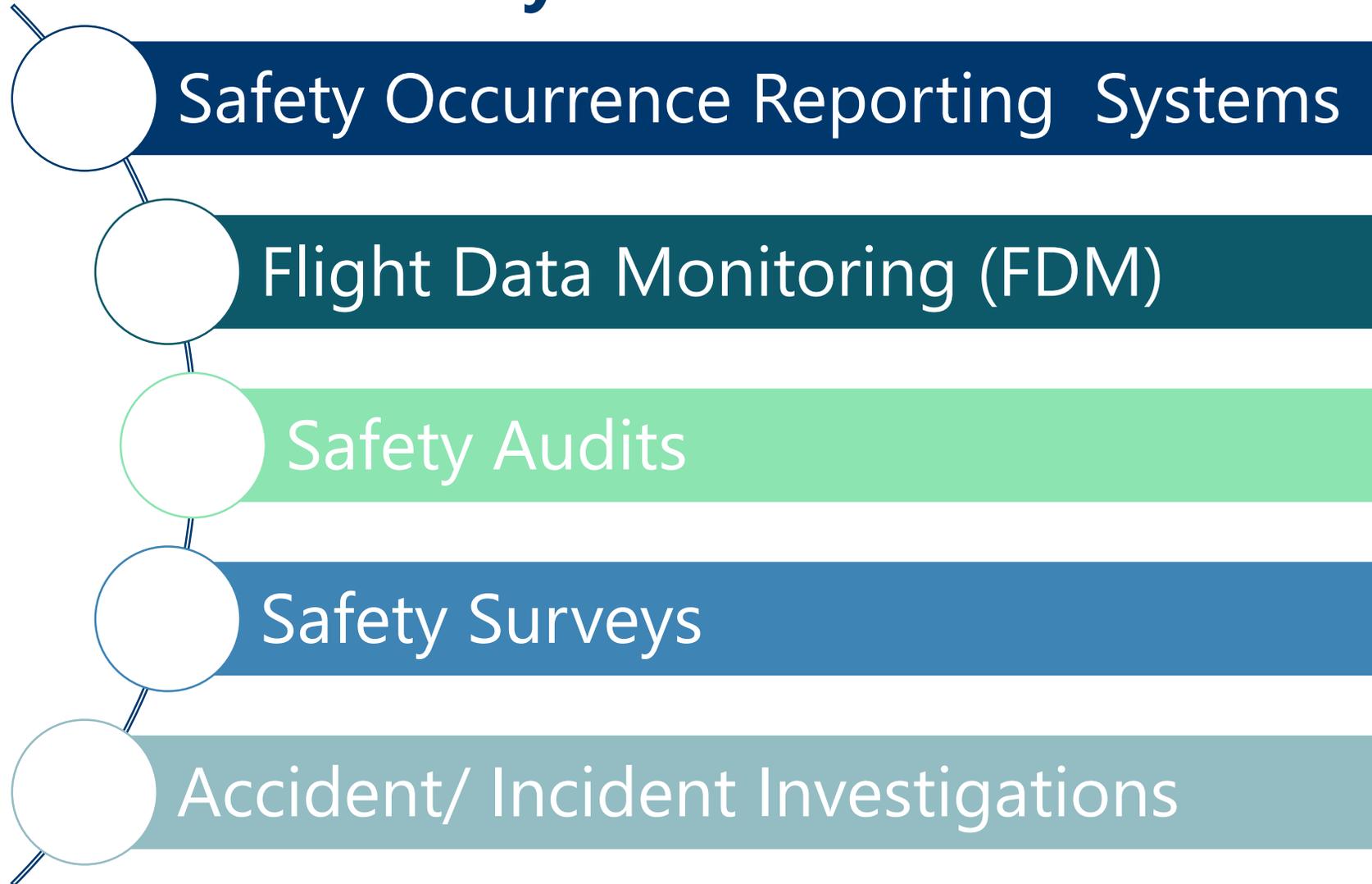
Safety Data Management Requirements

- Essential to store and later use of safety database in an efficient manner.
- Common terminology (same language) and Unique and standardized definitions.
- Event Coding: each occurrence is coded in terms of events, category, class, etc. (for example, aircraft type, type of operations, damage aircraft, occurrence class, injury level, airports, flight phase, descriptive factors .. Etc.)
- Severity/probability Assessment.
- Facilitation and Promotion of reporting.
- External coordination and working interfaces (Organizations, aviation authorities ...etc.)
- Establish a reliable and protected data/information (records).
- Process, Procedures and tools to support the analysis of occurrence and issuance recommendations.

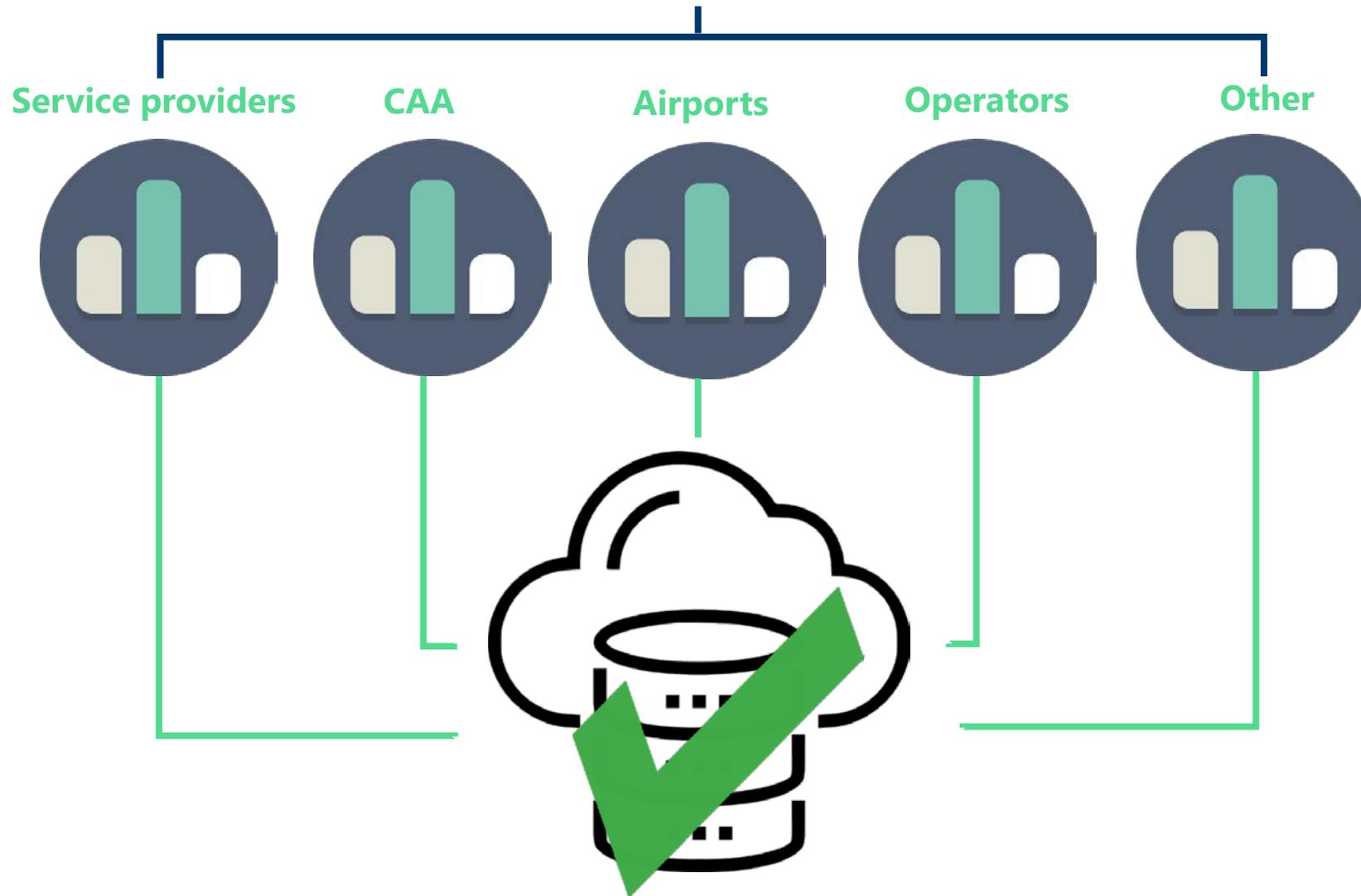




Safety Data Collection



Safety Data Sources:





System Scope

Accident

Occurrence associated with the operation of an aircraft in whom: a person is fatally or serious injured .. the aircraft sustains damage of structure failure... aircraft is missing completely.

Serious Incident

An incident involving circumstances indicating that there was a high probability of an accident and associated with the operation of an aircraft.

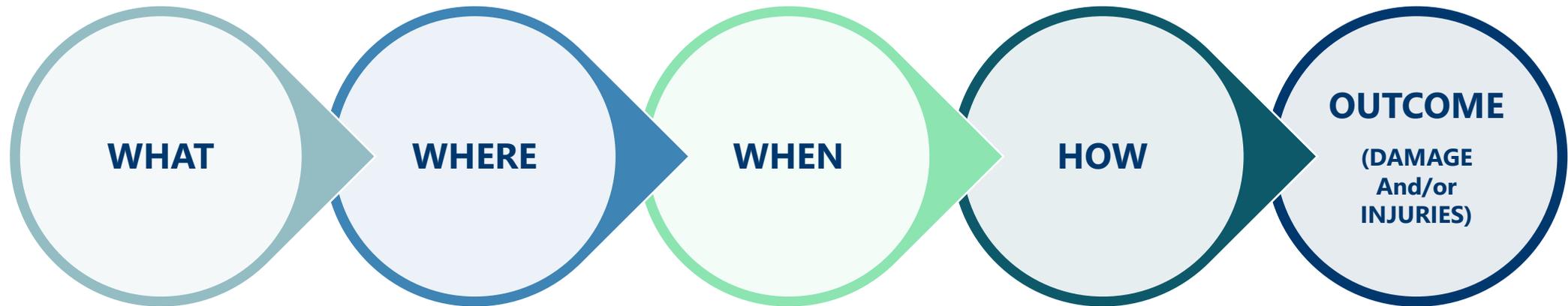
Incident

An occurrence , other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.

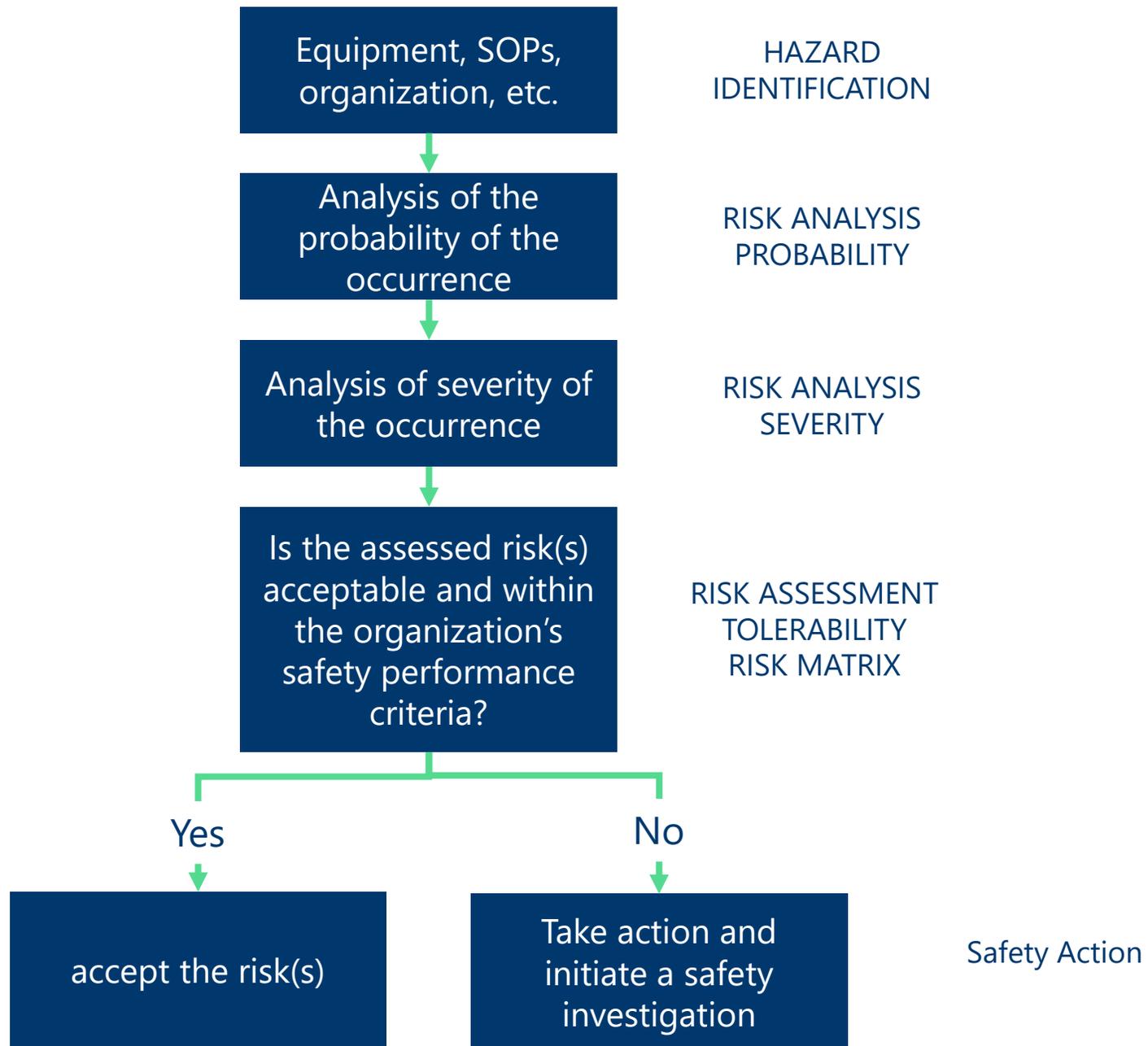
Hazard

All aircraft events other than accidents, Serious Incidents And incidents.

System Scope Cont.



Safety Risk Assessment



REPORT PROCESS

SCREENING

Safety event check, duplicity check,
minimum data check.

PRESENTING

Present the events for risk
assessment



EVENT

An occurrence detected by the
reporter and acknowledge by the
organization.



CODING

Code event: generate Organization
number, classification, category
...etc.



ARCHIVING

Update case files with upcoming
data in the cloud system/hard
copies.

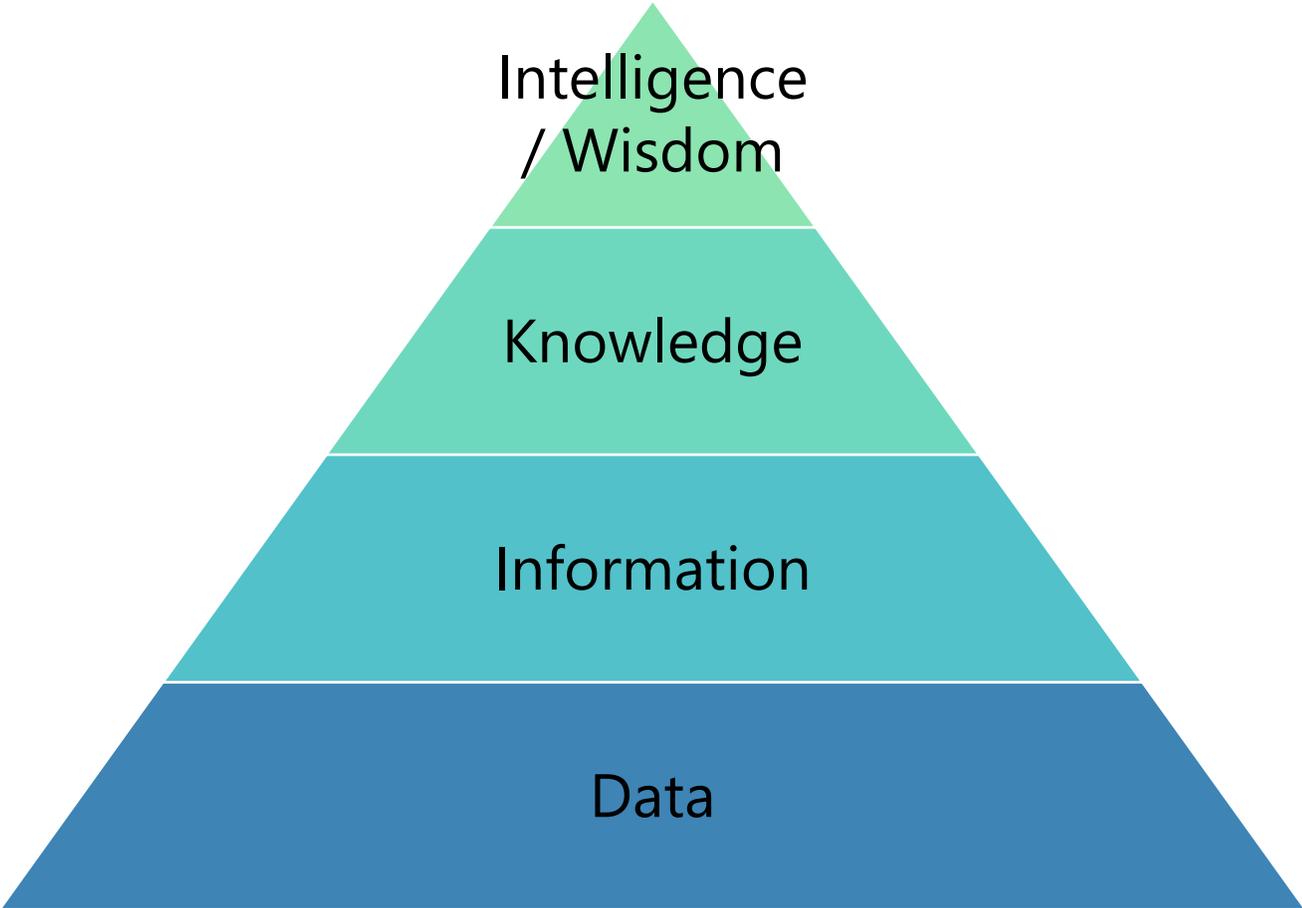


OUTCOMES





The DIKW Model



Database Example:

1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	EventID	Status	Date_NR	Loc	EventTitle	Description	RiskIndex	Operat	OccTyp	OCCID	Reporte	OCC_Date	Operation	AcftTy	Fa	Group	Category
5207	5695	Closed	1/1/2022	Riyadh King Khalid II	SVA1902 reported lightning strike on L/H wing tip		low	saudia	Hazard	010122-001	Airport	1/1/2022	Commercial	A320	0	Weather	WSTRW: Windshear or thunders
5208	5696	Closed	1/1/2022	Qassim Prince Naye	SVA1250 go around RWY 15 due to tailwind, aircraft landed safely		low	saudia	Hazard	010122-002	ANS	1/1/2022	Commercial	A320	0	Weather	WSTRW: Windshear or thunders
5209	5697	Closed	1/1/2022	Hail Airport	SVA1323 go around RWY 36 due to wind, aircraft landed safely		low	saudia	Hazard	010122-003	ANS	1/1/2022	Commercial	A320	0	Weather	WSTRW: Windshear or thunders
5210	5698	Closed	1/2/2022	Jizan King Abdullah	SVA1779 during landing RWY 15 reported a bird strike, no damage found		low	saudia	Hazard	010122-004	ANS	1/1/2022	Commercial	A320	0	Miscellaneous	BIRD: Birdstrike
5211	5699	Closed	1/2/2022	Al-Ahsa Airport	N802XA missed approach RWY 16 due to bad visibility.		low	Aramco	Hazard	020122-005	ANS	1/2/2022	General	B737	0	Weather	WSTRW: Windshear or thunders
5212	5700	Closed	1/2/2022	Qassim Prince Naye	NIA1105 go around RWY 15 due to poor visibility		low	Nile Air	Hazard	020122-006	ANS	1/2/2022	Commercial	A320	0	Weather	WSTRW: Windshear or thunders
5213	5701	Closed	1/2/2022	Abha Airport	SVA1648 go around RWY 13 due to wind shear		low	saudia	Hazard	020122-007	ANS	1/2/2022	Commercial	A320	0	Weather	WSTRW: Windshear or thunders
5214	5702	Closed	1/2/2022	Yanbu Prince Abdul	SVA1583 go around RWY 28 due to gear problem, aircraft landed safely.		low	saudia	Hazard	020122-008	ANS	1/2/2022	Commercial	A321	0	Aircraft	SCF-NP: System/component fai
5215	5703	Closed	1/2/2022	Jizan King Abdullah	SVA1781 reported a laser beam 20 NM / R350 north of GizanSVA1114 reported external power		low	saudia	Hazard	020122-009	ANS	1/2/2022	Commercial	A320	0	Miscellaneous	SEC: Security related
5216	5704	Closed	1/3/2022	Jeddah King Abdula	SVA1114 reported external power plug burned		Moderate	saudia	Hazard	030122-010	ANS	1/3/2022	Commercial	A330	0	Aircraft	F-NI: Fire/Smoke (non-impact)
5217	5705	open	1/3/2021	Dammam King Fahad	HZXF3 before roll out RWY 34L reported fuel leak, aircraft return to gate		Moderate	Oxford Av	Hazard	030122-011	ANS	1/3/2022	General	DA40	0	airborne	FUEL: Fuel Related
5218	5706	open	1/4/2021	Riyadh King Khalid II	HZA10 after departing RUH at FL120 reported engine No2 Flameout, the aircraft landed safely		high	Alpha Stai	incident	040122-012	ANS	1/4/2022	General	ATR42	0	Aircraft	F-NI: Fire/Smoke (non-impact)
5219	5707	Open	1/4/2022	Qassim Prince Naye	SVA1257 during rollout RWY 33 reported aborted takeoff due brake malfunction		low	saudia	Hazard	040122-013	ANS	1/4/2022	Commercial	A321	0	Aircraft	SCF-NP: System/component fai
5220	5708	Closed	1/5/2022	Nejran Airport	SVA1867 reported miss approach due to tailwind.		low	saudia	Hazard	050122-014	ANS	1/5/2022	Commercial	A320	0	Weather	WSTRW: Windshear or thunders
5221	5709	open	1/5/2022	Dammam King Fahad	HZXF9 after takeoff reported engine indecation malfunction, aircraft landed safrly RWY 34L.		Moderate	Oxford Av	Hazard	050122-015	Airport	1/5/2022	General	DA40	0	Aircraft	SCF-PP: System/component fail
5222	5710	open	1/6/2022	Aradah Airport	HZA10 declared an emergency due to loss of engine #2, aircraft return back to Aradah		high	Alpha Stai	incident	060122-016	ANS	1/6/2022	General	ATR42	0	Aircraft	SCF-PP: System/component fail
5223	5711	Closed	1/6/2022	Nejran Airport	SVA1850 missed approach RWY 24 due to tailwind, aircraft landed safely.		low	saudia	Hazard	060122-017	ANS	1/6/2022	Commercial	A321	0	Weather	WSTRW: Windshear or thunders
5224	5712	Closed	1/7/2022	Jeddah King Abdula	SVA326 reported vehicle blocking TWY W		low	saudia	Hazard	070122-018	ANS	1/7/2022	Commercial	A320	0	Ground Ops	RAMP: Ground handling
5225	5713	open	1/8/2022	Jeddah King Abdula	SVA167 during holding TWY K5 declared an emergency due to smoke in the cockpit		Moderate	saudia	Hazard	080122-019	ANS	1/8/2022	Commercial	B787	0	Aircraft	F-NI: Fire/Smoke (non-impact)
5226	5714	Closed	1/8/2022	Jeddah King Abdula	SVA1427 while downwind RWY 34R, reported fixed wings UAV in visual contact at 7000FT oppc		low	saudia	Hazard	080122-020	ANS	1/8/2022	Commercial	A320	0	Miscellaneous	SEC: Security related
5227	5715	Closed	1/8/2022	Jeddah King Abdula	HZA11 during landing RWY 34L reported a drone heading from east to west.		low	saudia	Hazard	080122-021	ANS	1/8/2022	General	ATR72	0	Miscellaneous	SEC: Security related
5228	5716	Closed	1/9/2022	Jizan King Abdullah	SVA1773 missed approach RWY 33 due to high altitude, aircraft landed safely		low	saudia	Hazard	090122-022	ANS	1/9/2022	Commercial	A320	0	airborne	NAV: Navigation Errors
5229	5717	Closed	1/9/2022	Jeddah King Abdula	SVA1421 missed approach RWY 34R due to glide slope false indication, aircraft landed safely		low	saudia	Hazard	090122-023	ANS	1/9/2022	Commercial	A321	0	non-aircraft rela	ATM: ATM/CNS
5230	5718	Closed	1/9/2022	Jeddah King Abdula	FAD4636 missed approach RWY 16L due to lose of ILS signal		low	flyadeal	Hazard	090122-024	ANS	1/9/2022	Commercial	A320	0	non-aircraft rela	ATM: ATM/CNS
5231	5719	Closed	1/9/2022	Jeddah King Abdula	N551TD while lining up RWY 34C reported brakeing malfunction, and OPS reported N551TD go		Moderate	Private	incident	090122-025	Airport	1/9/2022	General	AT502	0	Aircraft	SCF-NP: System/component fai
5232	5720	Closed	1/10/2022	Medina Prince Moh	ABY1175 reported not receiving localizer RWY 17 and requested to continue approach. Then, r		low	Air Arabia	Hazard	100122-026	ANS	1/10/2022	Commercial	A320	0	non-aircraft rela	ATM: ATM/CNS
5233	5721	Closed	1/10/2022	PARIS CHARLES DE G	SVA3126 during climb through FL34000 reported TCAS TA led to a decrease rate of climb by 100		Moderate	saudia	incident	070122-027	Operator	1/7/2022	Commercial	B777	0	airborne	MAC: AIRPROX/TCAS Alert/ Loss
5234	5722	Closed	1/10/2022	Jizan King Abdullah	KNE111 instructed to go around RWY 15 due to previous landed flight didn't follow ATC clearar		low	flynas	Hazard	100122-028	ANS	1/10/2022	Commercial	A320	0	non-aircraft rela	ADRM: Aerodrome
5235	5723	Closed	1/10/2022	Taif international Ai	SVA1911 go around RWY 17 due to RWY 17, not insight		low	saudia	Hazard	100122-029	ANS	1/10/2022	Commercial	A320	0	Weather	WSTRW: Windshear or thunders
5236	5724	Closed	1/11/2022	Abha Airport	FAD335 reported a dog crossing RWY 13.		low	flyadeal	Hazard	110122-030	ANS	1/11/2022	Commercial	A320	0	Ground Ops	WILD: Wildlife
5237	5725	Closed	1/11/2022	Jeddah King Abdula	SVA020 missed approach RWY 34R due to 2 dogs on the RWY.		low	saudia	Hazard	110122-031	ANS	1/11/2022	Commercial	B777	0	Ground Ops	WILD: Wildlife
5238	5726	Closed	1/11/2022	Jeddah King Abdula	SVA890 reported FOD on TWY ME		low	saudia	Hazard	080122-032	ANS	1/8/2022	Commercial	A330	0	non-aircraft rela	ADRM: Aerodrome
5239	5727	Closed	1/11/2022	Tabuk Prince Sultan	SVA1527 go around due to poor visibility. Aircraft diverted to Madinah		Moderate	saudia	Hazard	110122-033	ANS	1/11/2022	Commercial	A320	0	Weather	WSTRW: Windshear or thunders
5240	5728	Closed	1/11/2022	Tabuk Prince Sultan	SVA1951 diverted to Madinah due to poor visibility		Moderate	saudia	Hazard	110122-034	ANS	1/11/2022	Commercial	A320	0	Weather	WSTRW: Windshear or thunders
5241	5729	Closed	1/11/2022	Tabuk Prince Sultan	KNE764 diverted to Madinah due to poor visability		Moderate	flynas	Hazard	110122-035	ANS	1/11/2022	Commercial	A320	0	Weather	WSTRW: Windshear or thunders



Overview

Total Movement

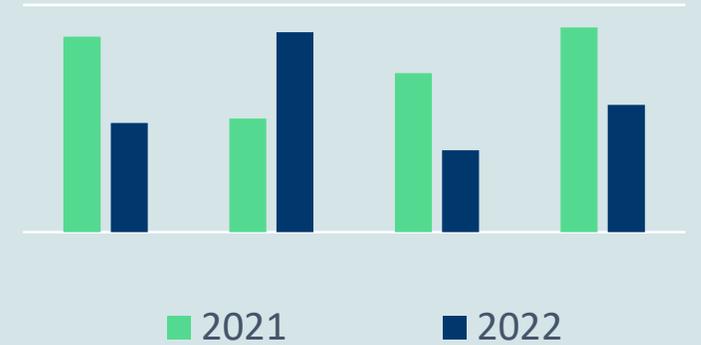
53,290

Total occurrences

665



2021-2022



Safety Indicators



Investigation

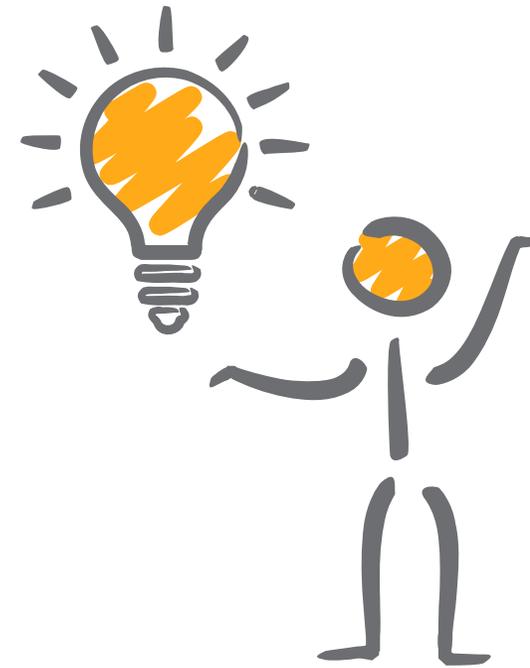


Most Airports

RID

MISS APP
FOD







RECOMMENDATIONS





Recommended Practices – Report process

1

READ REPORT CAREFULLY FIRST

2

IDENTIFY FACTUAL INFORMATION

3

DETERMINE TYPE OF OCCURRENCE

4

DEVELOP SEQUENCE OF EVENTS

5

COMPLETE DATA CHECK





Recommended Practices – Safety Data Management

- Accessibility to safety information granted to organizations and authorities..
- Database systems should be use standardized format to facilities exchange.
- Safety data only used for safety related purposes.
- Exchange data with other organizations in case a deficiency of interest has been detected.
- Establishment of safety information sharing networks among users of aviation system.





THANK YOU

