



EASA
European Aviation Safety Agency

SAFA inspections – EASA projects

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Air Operations Implementation – RAMP Coordination

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Background Ramp inspection programme

- Concern ICAO Standards not fully applied
- Continuous growth in air transport => same trend in accidents?
- ICAO and FAA actions
- European initiative:
European Civil Aviation Conference - ECAC
 - Initial discussion 1994/1995
 - June 1996: adoption of SAFA programme by ECAC
DGCA meeting

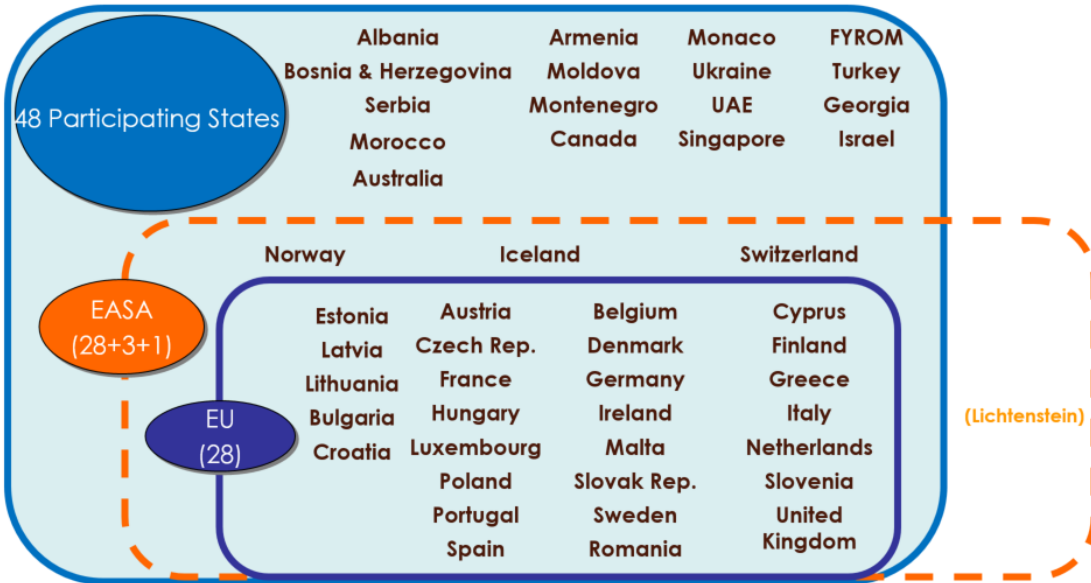
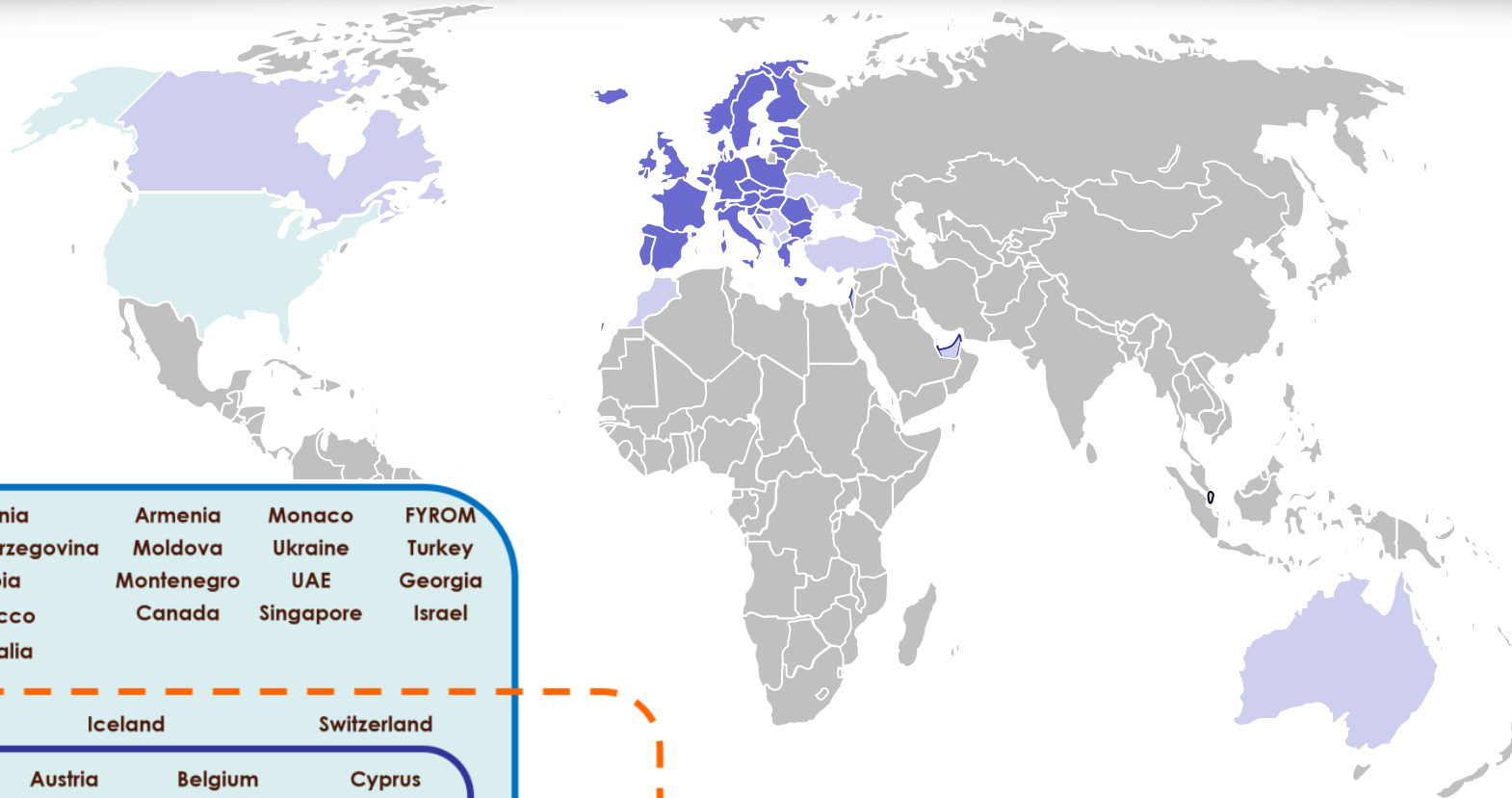


Principles

- **Bottom-up** approach
- Common inspection procedures
- Common SAFA Database
- Common **training** of inspectors
- **Standardisation**: to ensure data quality
- **Prioritisation**: to have a risk based approach

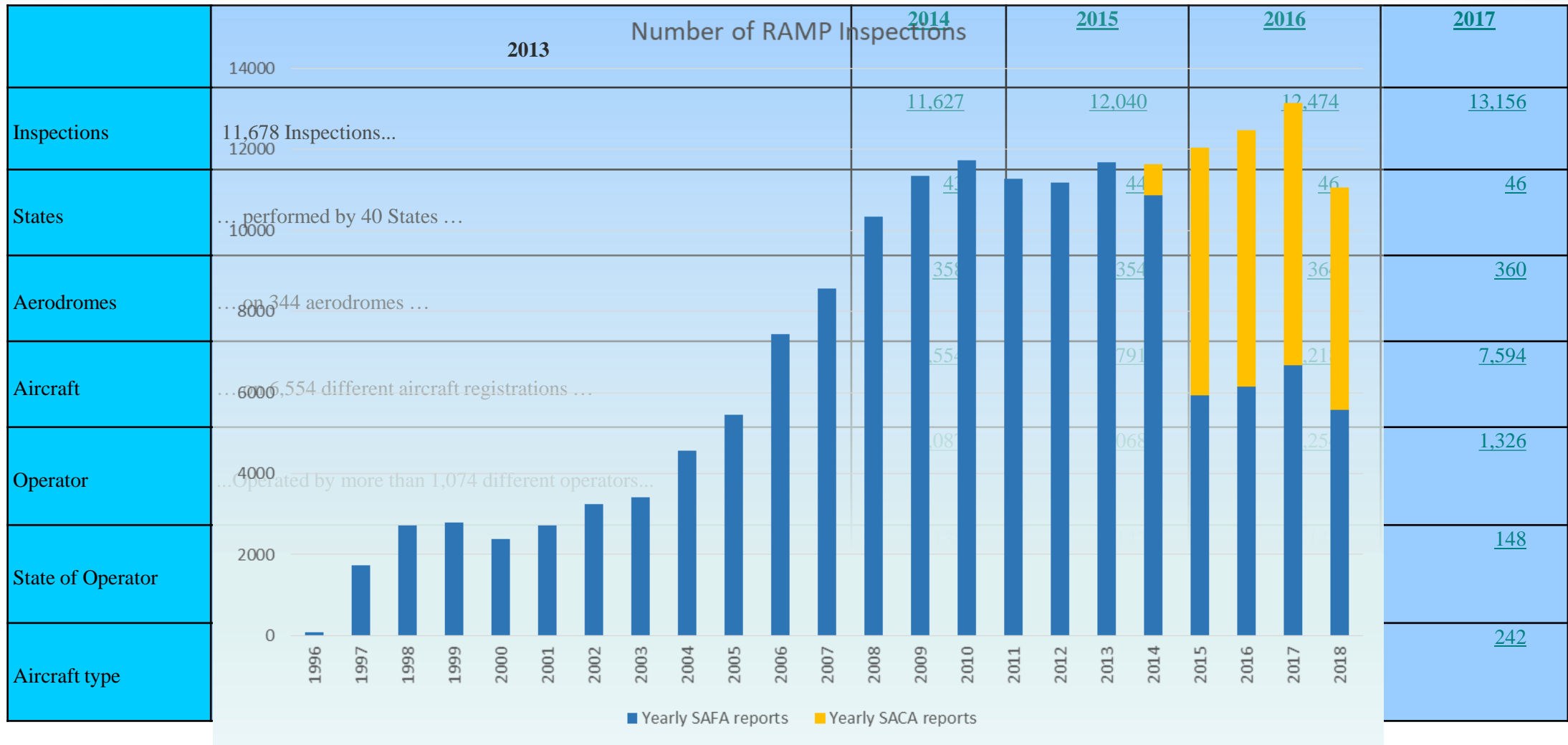


RAMP: Global programme





Inspections





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System Wide Coordination Risk based annual programme

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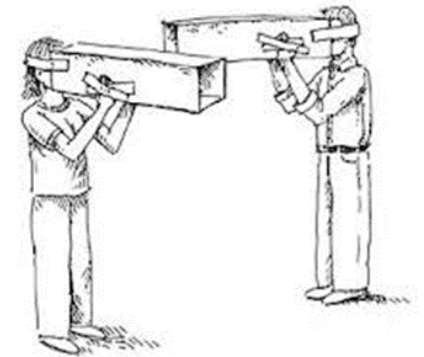
The issues

➤ Over-inspection

- Some operators receives a unproportioned high number of inspections with disruption of operations as well as increased administrative burdens

➤ Under-inspection

- 100 + operators with no inspections
- “numbers” instead of “quality”
- Individual Authority’s risk assessment without coordination or “cooperative oversight”





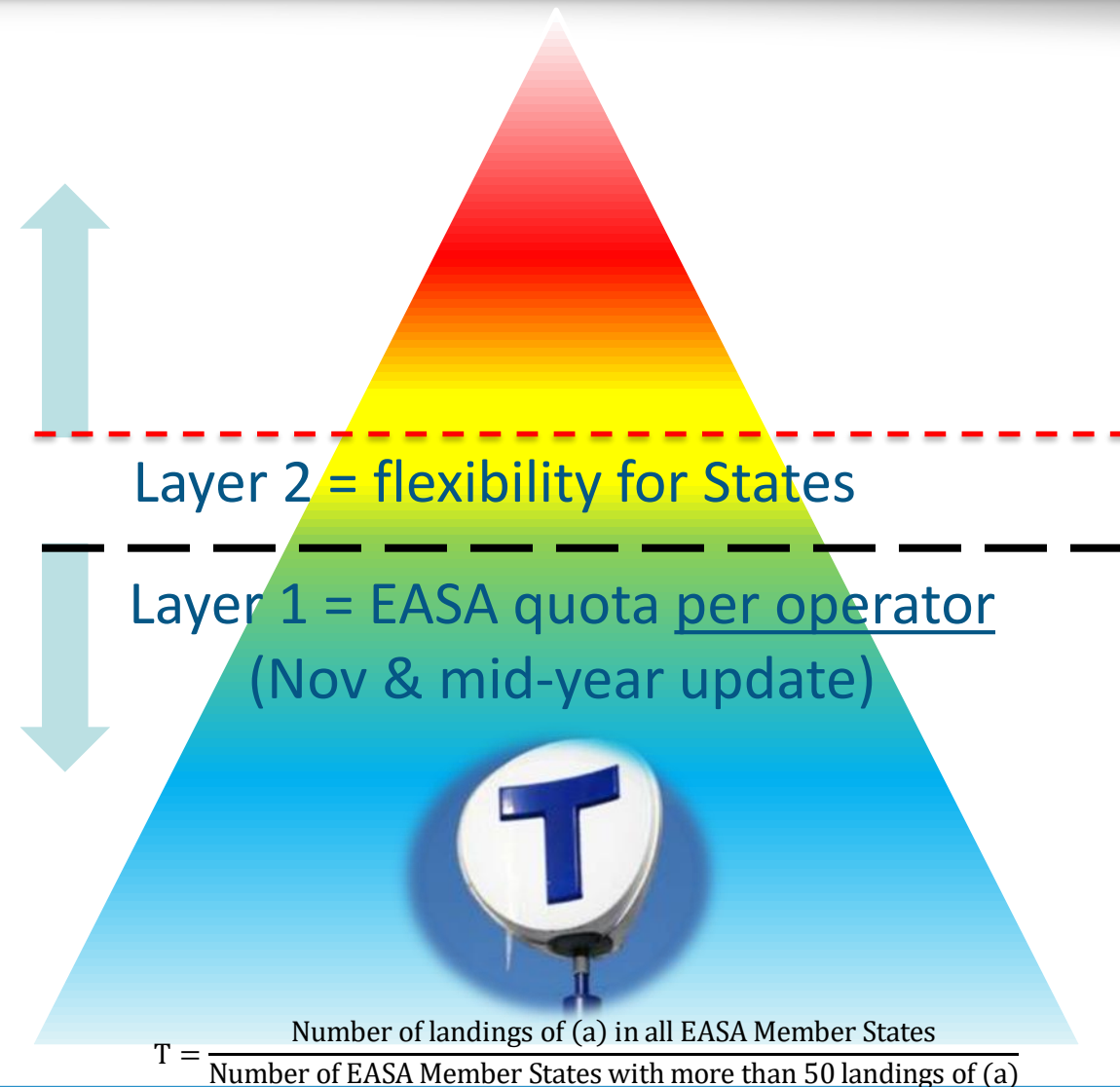
The solution

- System Wide Coordination (SWC) working group established in 2016, National coordinators from 9 EASA States
 - Create a risk-based model and system-wide approach, by establishing a fair number of inspections per operator **[how many]**
 - Propose a methodology to establish the annual number of inspections for each State **[by whom]**
- Structure and principles of the model agreed in 3Q 2017, used for 2018 trial phase
- 21 States currently in the trial
- EASA States **only**, implementation 2019



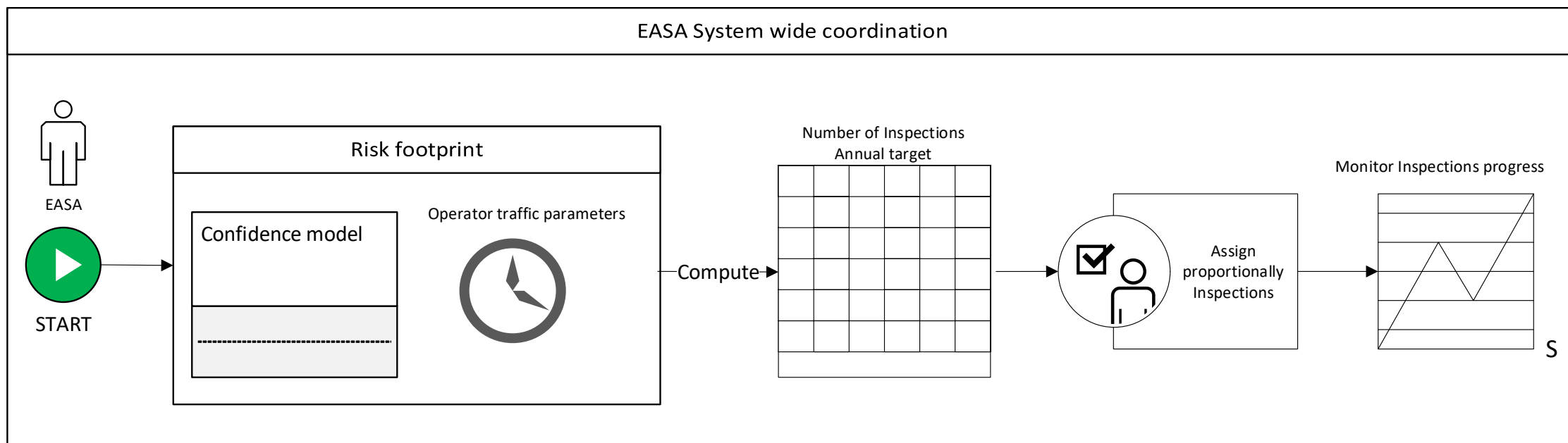
Two layers of operators

- ▶ **Layer 2:** all operators not covered by Layer 1
- ▶ **Layer 1 :** operators for which EASA calculates a prescriptive target number of inspections to be performed by each EASA State, taking into account historical information on the number of movements and risk indicators (*such as SAFA Ratio and trends, accident history, average fleet age, State oversight performance*)
 - ▶ Roughly 200 operators / 90% of traffic in EASA States





EASA system wide coordination





Differences in the number of inspections (top 10)

Operator	2017 all inspections	2017 ratio	2018 Total target	Change
1	154	0.3	67	-56%
2	146	0.16	51	-65%
3	138	0.4	67	-51%
4	125	0.46	73	-42%
5	121	0.15	65	-46%
6	116	0.46	53	-54%
7	114	0.26	32	-72%
8	113	0.2	38	-66%
9	105	0.57	67	-36%
10	92	0.35	44	-52%

Total decrease in Layer 1 is 40%





Review of 2018 trial (Q1-Q3)

- ▶ States perform well with very limited exceedances of Layer 1 targets
- ▶ Still some under-inspection
- ▶ Sometimes difficult for inspectors to identify operator (i.e.)
 - ▶ Wet lease arrangements, ACMI operations
 - ▶ Interoperability between AOCs in group operations
 - ▶ ATS Flight plan entries
 - ▶ Ad hoc Operator changes





Implementation of System Wide Coordination

- Applicable only for EASA States (opt-in for non-EASA)
- States may choose **to use** SWC in 2019 (transition year)
 - EASA will provide targets by December 2018
- For those **not applying** SWC in 2019
 - The SWC **total** number of inspections be used as “the quota”
 - **No assessment** of violations like over-inspection
- EASA apply “convincing methods” to implement SWC as much as possible!
- EASA monitors via a powerful “CMA tool”!





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Manufacturer Data Safety driven assessment missing fasteners and bonding wires

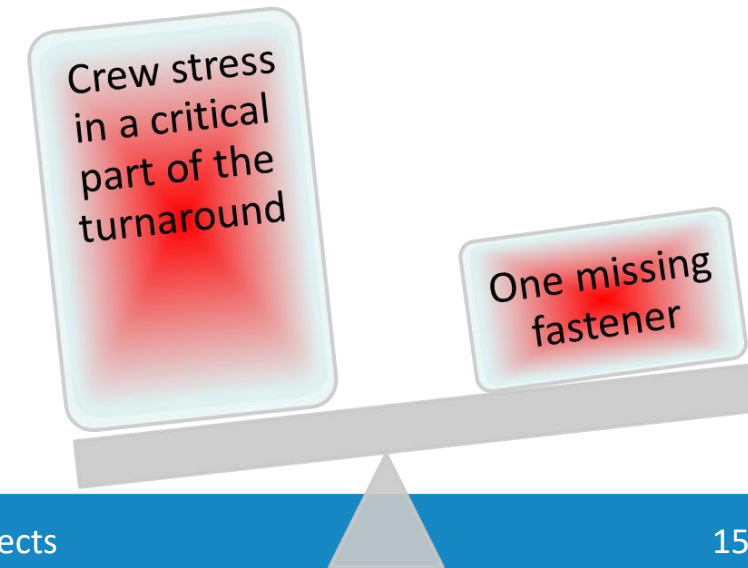
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The problems

- Many Cat 3 findings raised on bonding wires and loose / missing fasteners
- Findings categorisation not linked to their safety relevance
- Use of manufacturer limits not meant for ramp inspectors
- Impossible to develop instructions for every possible case and inspector background
- Overall safety might be endangered!





The solution – Working group and outcome

- ▶ **Working group** established 2016, basic principles agreed 2017
- ▶ Implement a **safety-driven assessment** and **categorisation** of findings on missing fasteners / bonding wires
- ▶ Use of **manufacturer data**, to evaluate the applicable dispatch conditions, falls under the **responsibility of the operator**
- ▶ Assessment “safety impact” for missing fasteners / bonding wires (**assessment matrix + new categorisation**)
- ▶ Six states engaged in live testing of the system end of 2017, equivalent **level of safety** achieved



Assessment matrix

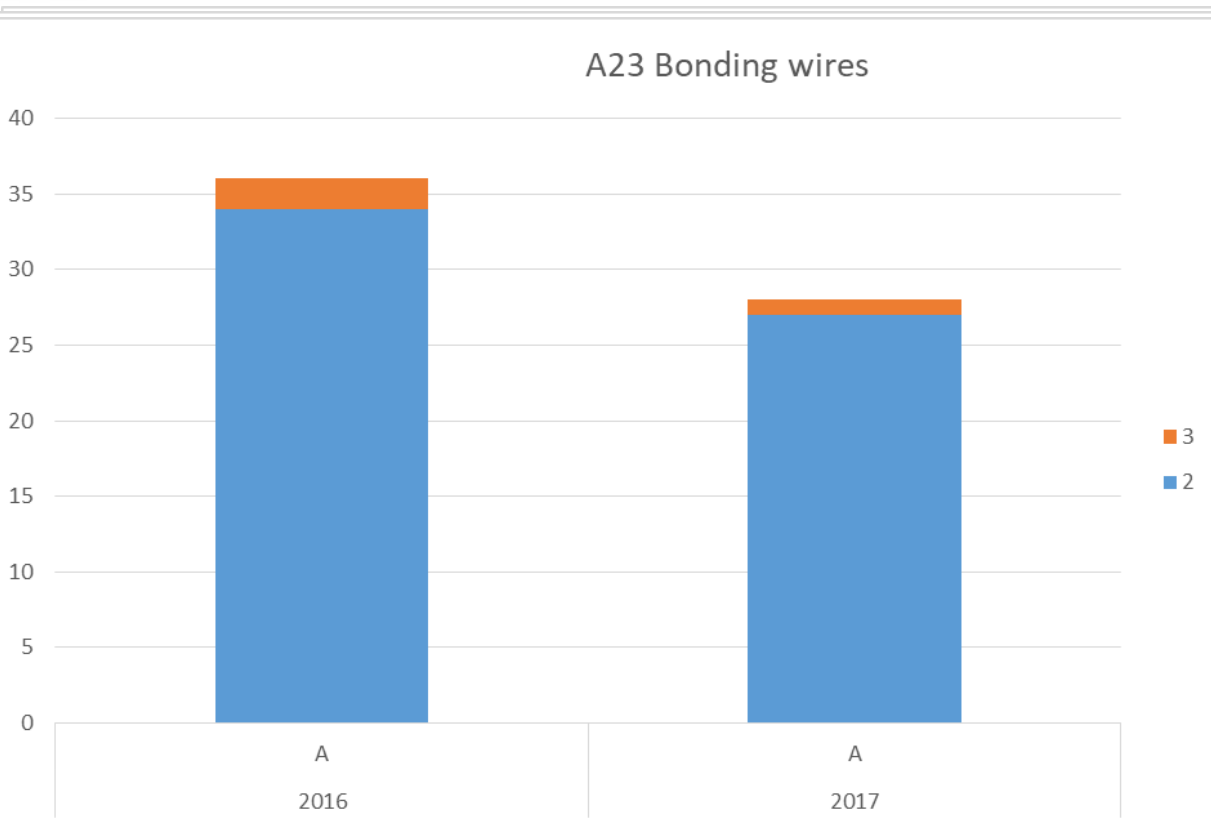
DRAFT

		Assessment criteria's	follow up
Assessment level	Minor	<p>CAT 1</p> <p>Minor impact fasteners: -one or more missing fastener (s) not adjacent at any location in any number of secondary structure panels which are flush to the surrounding structure.</p> <p>Minor impact bondings: -broken or missing bonding wire (s) in servicing/access/fairing panels, cargo doors, inlet & outlet valves and landing gear doors. -All bonding wires with redundancy.</p>	<p>-Normal debriefing together with proof of inspection but no formal follow up via the database by inspecting NAA.</p> <p>- no further assessment by the inspector at time of inspection</p>
	Significant	<p>CAT2</p> <p>Significant Impact fasteners: -two consecutive missing fasteners in secondary structure panels, with the panel flush with surrounding structure. - Consecutive rivets missing in engine exhaust nozzle skin, wheel wells or similar locations outside pressurized areas. -No evident exposure to airflow or noticeable damages that could lift the panel.</p> <p>Significant Impact bonding's: wire broken (unserviceable), but redundant bonding wire available, typically installed in a access door, flight control system or landing gear system</p>	<p>-Normal debriefing together with proof of inspection;</p> <p>-No further assessment by the inspector at time of inspection.</p> <p>-The operator should assess and report findings that potentially lowers safety in accordance with their approved procedures under its own responsibility and accountability</p> <p>-The operator is requested to upload AMM/SRM dispatch limits in the follow up process.</p> <p>-Findings should not be closed prior to the upload of dispatch limits or equivalent.</p> <p>-Oversight NAA may be requested to comment into the database in cases whereas the operator has operated outside the manufactures limitations with repetitive breaches of ICAO or EU requirements.</p>
	Major	<p>CAT 3</p> <p>Major impact fasteners: one of the following conditions - loose/missing fastener in primary structure element - loose/missing rivet in pressurized area - loose/missing bolts, lockbolts, high locks other fasteners with safety wire protection - two or more consecutive loose/missing rivets in engine inlet cowls/skin or similar locations that could cause a FOD hazard - loose/missing fastener on a secondary structure panel being loose with evident exposure to airflow or significant damages that could lift the panel.</p> <p>Major impact bondings: -broken or missing bonding wire (s) without redundant bonding wire available in emergency exit doors, flight control system or landing gear system</p>	<p>-Debrief the operator soonest to avoid delays with a clear instruction to record in Aircraft technical log book system or equivalent and assess defect.</p> <p>-Findings or remarks which seriously hazards flight safety should be resolved by the operator prior departure</p> <p>-Assessment according to the manufactures dispatch limits prior to departure as per the operators approved procedures with a certificate of release (CRS).</p> <p>-manufacturer limits as described in AMM/SRM should only be used whereas the assessment indicates Major impact on flight safety and the operator should provide the inspector with evidences for corrective action (3b).</p> <p>*Defects that that after assessment by the operator is found to be within dispatch limits or leads to paperwork only should be categorized as significant CAT 2.</p>





Review of trial – Bonding wires & Missing fasteners 2016-2018



Significant reduction in cat 3 findings

- New matrix worked as intended, widely accepted by inspectors
- Need to find the balance between “de-briefing the crew early to avoid delays” and “wait for the pre-flight inspection to be completed”
- In the majority of cases maintenance action was carried out before next flight, as per operators’ procedures
- Very few operators did not adequately followed-up Cat.1/2 findings
- **Significant reduction in category A findings**



Implementation of Manufacturer Data

Guidance for inspectors in the Ramp Inspection Manual

- **Inspector training** (Matrix, Flowchart new procedures)
- **Cat 3: early briefing to crew (ASAP)**
 - **Risk of disagreement** because of early reporting
- **Cat 1 & 2: report as usual during de-briefing**
 - **Follow-up** in database becomes important
 - **Operators** to upload of AMM/SRM + corrective actions in Tech Log
 - **Inadequate** follow-up to be handled by **oversight authority**
- **Negative trends may lead to going back to the old system...**





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Thanks for your attention

Questions?

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