



EUROPEAN AVIATION SAFETY AGENCY
AGENCE EUROPÉENNE DE LA SÉCURITÉ AÉRIENNE
EUROPÄISCHE AGENTUR FÜR FLUGSICHERHEIT

The model for Standardisation inspections planning

Presentation to ASCOS group

Cologne, 19.04.2013

Your safety is our mission.



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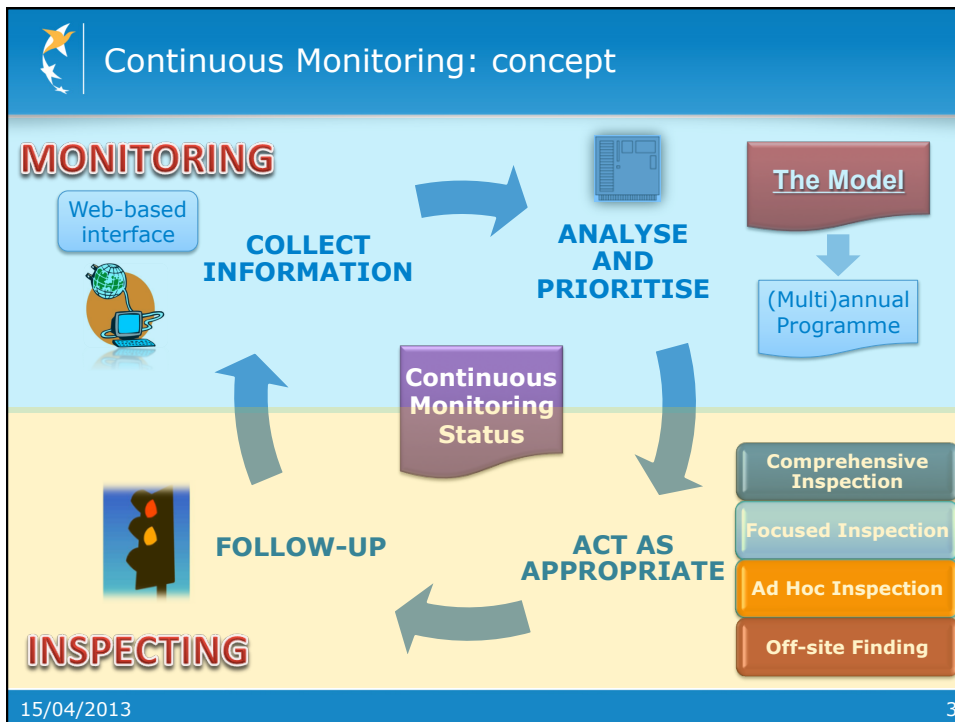
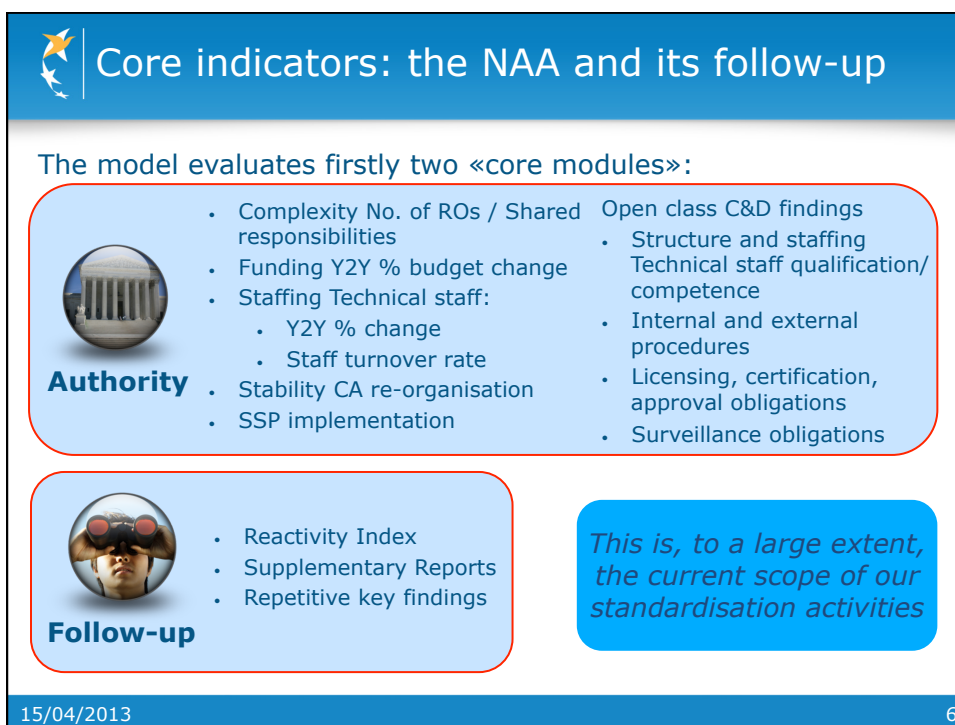
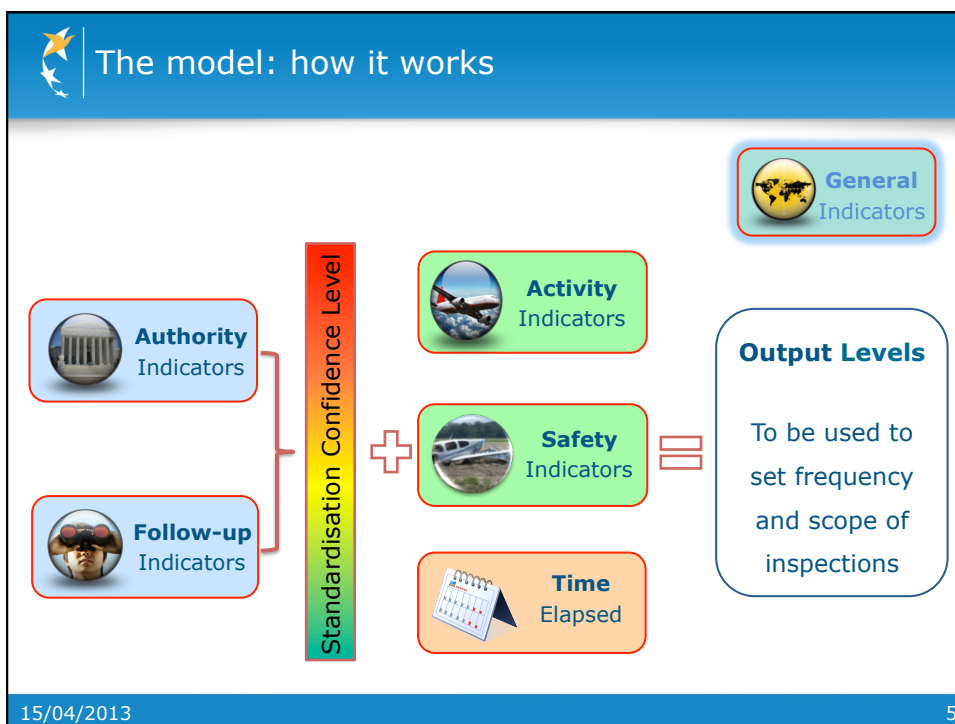


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Additional indicators

The model then takes into account the following indicators:




- Aircraft registered
- Organisations approved
- Personnel licences issued
- Traffic indicators
- Domain-specific indicators

Activity



- Accidents
- SAFA Country ratio
- Operators in "high SAFA" list
- Immediate Safety Hazards
- Domain-specific indicators

Safety




- NAA Independence
- Corruption index
- Financial indicators
- Major gov't changes

General

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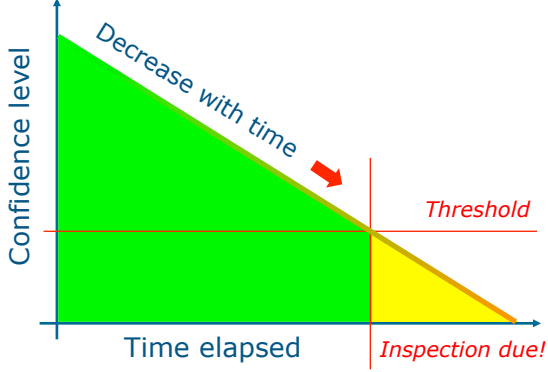
The influence of time

Finally, the model considers the influence of time elapsed since the last inspection, as the reliability of the information on the NAA's capability and performance taken at that stage will inevitably decrease with time:



Time elapsed

=



Confidence level

Decrease with time

Threshold

Time elapsed

Inspection due!

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Data collection and model validation

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Data input: which / from where / when

- **Several data** can be collected from **sources** such as **ICAO**, but **some** need to be provided by **Competent Authorities**.
- To a large extent, such data is **already** being collected when **preparing** Standardisation Inspections (Pre-Visit Questionnaires).
- Pending the availability of a web-based data collection interface, the **Country Status Report (CSR)**, already introduced as a tool to provide the European Commission with key information, is being used to collect such data (Excel sheet).
- Proposed frequency of data update: min **6 months or ± 20% change**

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Data population

Indicator values were populated for 31 countries

The image shows a screenshot of a data table with a grid of cells. The text 'Air raw data' is overlaid in large, semi-transparent blue letters across the center of the table. The table appears to be a spreadsheet or database view with multiple columns and rows of data.

Please note: Poor data quality and lack of supplied data can reduce the Model's accuracy!

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Validation and optimisation

A weighting factor or penalty score is assigned to each indicator, analogous to its relative importance. The aim of the analysis is:

- ⇒ **validate** existing model
 - ⇒ **adjust/correct** penalty scores
- using** → Expert judgment

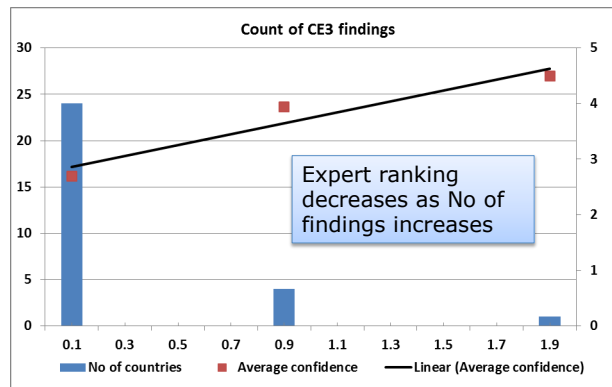
Please note: The effects of **Time elapsed**, **Size of industry** and **Safety Indicators** have not been considered in the Model at this stage

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Single factor analysis

- Test indicators: How well they correlate i.e. agree/vary with expert ranking
- Expert ranking: 1-high score, 5 – low score



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Multi factor analysis

- Regression analysis: solve a system of equations that maximises agreement with expert ranking to acquire the optimum weight for each indicator
- Penalty scores and conditions are adjusted to
 - match regression analysis results and
 - take into consideration experts' advice



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 Model output and use

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 Country Dashboard: proof of concept 

 REPUBLIC OF ELBONIA	Population	Movements	Accidents	ICAO LEI	GDP Δ	Stability	CPI
	8.540.000	658.250	2A / 8H	34,8	+3,5%	Interim Gov.	4,8

	AIR	OPS	ACW	MED	FSTD	ANS
Authority	85	52	65	80	72	65
Follow-up	72	78	52	24	88	92
Activity	+++	++	++	+	+	+++
Safety	← 78 →					82
Time elapsed	1,4	1,8	2,2	2,2	0,6	0,9
OUTPUT LEVEL	B	C	C	D	B	A

Additional information:
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How the output may be used (TBD)



The results may be used for planning purposes at **three levels**:

- **Strategic** level: by clustering the results, a multi-annual plan of comprehensive inspections for each domain can be determined, e.g.:

1 st Quartile	2 nd Quartile	3 rd Quartile	4 th Quartile
0 – X1 months	X1 – X2 months	X2 – X3 months	X3 – X4 months

- **Tactical** level: trends and variations can be used to determine the timing and scope of focused inspections, as well as to revise the multi-annual inspection plan;
- **Operational** level: in case of sudden reductions in one or more values, ad-hoc information requests and/or inspections can be triggered as appropriate.



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Many thanks for your attention

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