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ICAO SEMINAR ON
GREEN AIRPORTS

Session 6 – Community Engagement and Cooperation

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EUROCONTROL Environment



The European CCO / CDO TF was established in 2015

Outcomes:

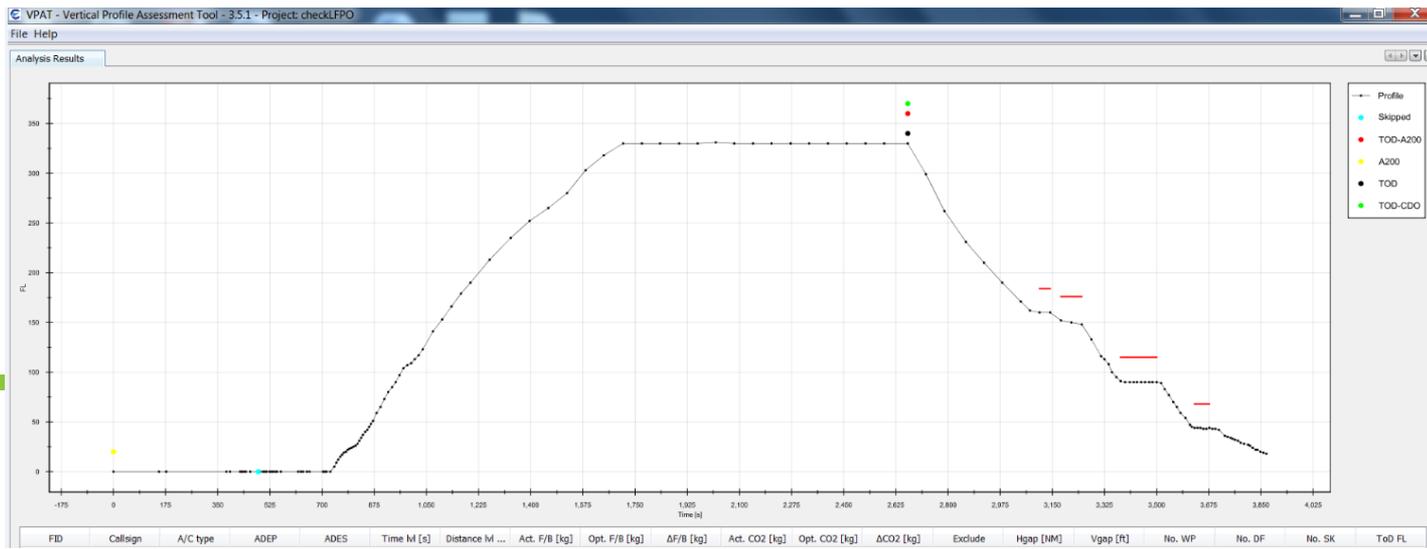
- Harmonised definition of achieved CCO and CDO
- Harmonised definition of a noise CDO and a fuel CDO
- Harmonised definition of a noise CCO and a fuel CCO
- Harmonised definition of a metric for measurement of CCO / CDO undertaking

For detailed definitions and more information on the outcomes of the TF, see <http://www.eurocontrol.int/articles/continuous-climb-and-descent-operations>

States / ANSPs are encouraged to use the harmonised definitions and parameters for measurement whenever they detail the status of CCO / CDO at international fora

A benefits study was undertaken.....

- European wide CCO and CDO study to measure the potential benefit pool available from vertical flight efficiency
- 3 months ADS-B surveillance data from FR24
- EUROCONTROL, through SESAR developed VPAT (Vertical Profile Assessment Tool) which is able to handle the intricacies / nuances of ADS-B data (e.g. granularity, horizontal / vertical spikes, ADS-B receiver reliability etc..)



Results:

Type	Altitude Band	% of flights CCO	Avg time level (all flights) (s)	Avg fuel wasted (all flights) (kg)	Avg CO2 wasted (all flights)	Avg money saved - (all flights) (€)
Noise	2500ft - FL105	93,38%	5,786056	-	-	-
Fuel	2500ft - ToC	74,74%	41,87293006	4,32258347	13,65940525	1,918670256

Type	Altitude Band	% of flights CDO	Avg time level (all flights) (s)	Avg fuel wasted (all flights) (kg)	Avg CO2 wasted (all flights)	Avg money saved - (all flights) (€)
Noise	FL75 - 1800ft	45,08%	66,69115297	-	-	-
Fuel	ToD - 1800ft	26,19%	165,5134225	38,08382778	120,3448809	16,90431384

Results:

CCO – 93% CCO to FL100 (75% to ToC)

Average time in level flight = 42 secs (to ToC)

Average possible saving per flight (All European flights) = 4.3kg fuel / 13.7kg CO2 / 2€

CDO – 45% from FL75 (26% from ToD)

Average time level flight = 165 secs (from ToD)

Average possible saving per flight (All European Flights) = 38.1kg fuel / 120kg CO2 / 17€



Results:

- **DRAFT** results indicate potential savings IN EUROPE of up to:

340,000 tonnes fuel / year

1,100,000 tonnes CO₂ / year

150M EUR / year

- The potential fuel saving benefits from CDO are in the region of x10 of those from CCO
- Some consider that the results could be conservative.....
- These figures are aligned with ICAO-CAEP estimations of fuels saving benefits from CCO / CDO estimated in ICAO's ASBU B0 environmental assessment.

For more, see page 120 of the 2016 ICAO Environmental Report:

<https://www.icao.int/environmental->

[protection/Documents/ICAO%20Environmental%20Report%202016.pdf](https://www.icao.int/environmental-protection/Documents/ICAO%20Environmental%20Report%202016.pdf)



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Airport-related ASBU modules

- A-CDM – Airport Collaborative Decision Making
- SURF – Surface Operations (A-SMGCS - Advanced-Surface Movement Guidance and Control System)
- APTA – Airport Accessibility (GBAS for non-ILS runways, access through RNP-AR functionality, reduction of taxi times due to reduction of ILS critical area, different glideslopes permits a reduced separation)
- CDO – Continuous Descent Operations
- CCO – Continuous Climb Operations
- WAKE – RECAT, TBS
- RSEQ – AMAN / SMAN



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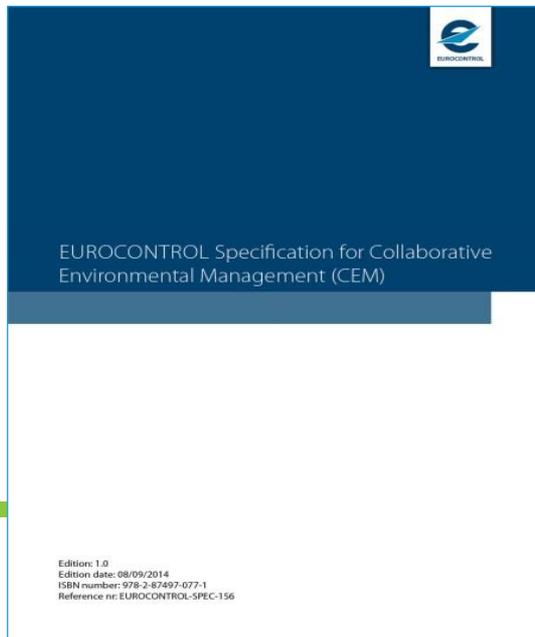
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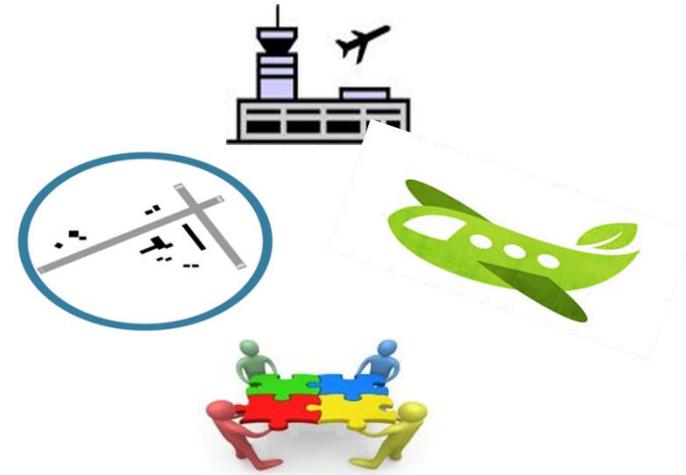
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How can collaboration be addressed?

CEM SPECIFICATION - Getting key operational stakeholders to address their common environmental challenges: airport operators, aircraft operators and ANSPs

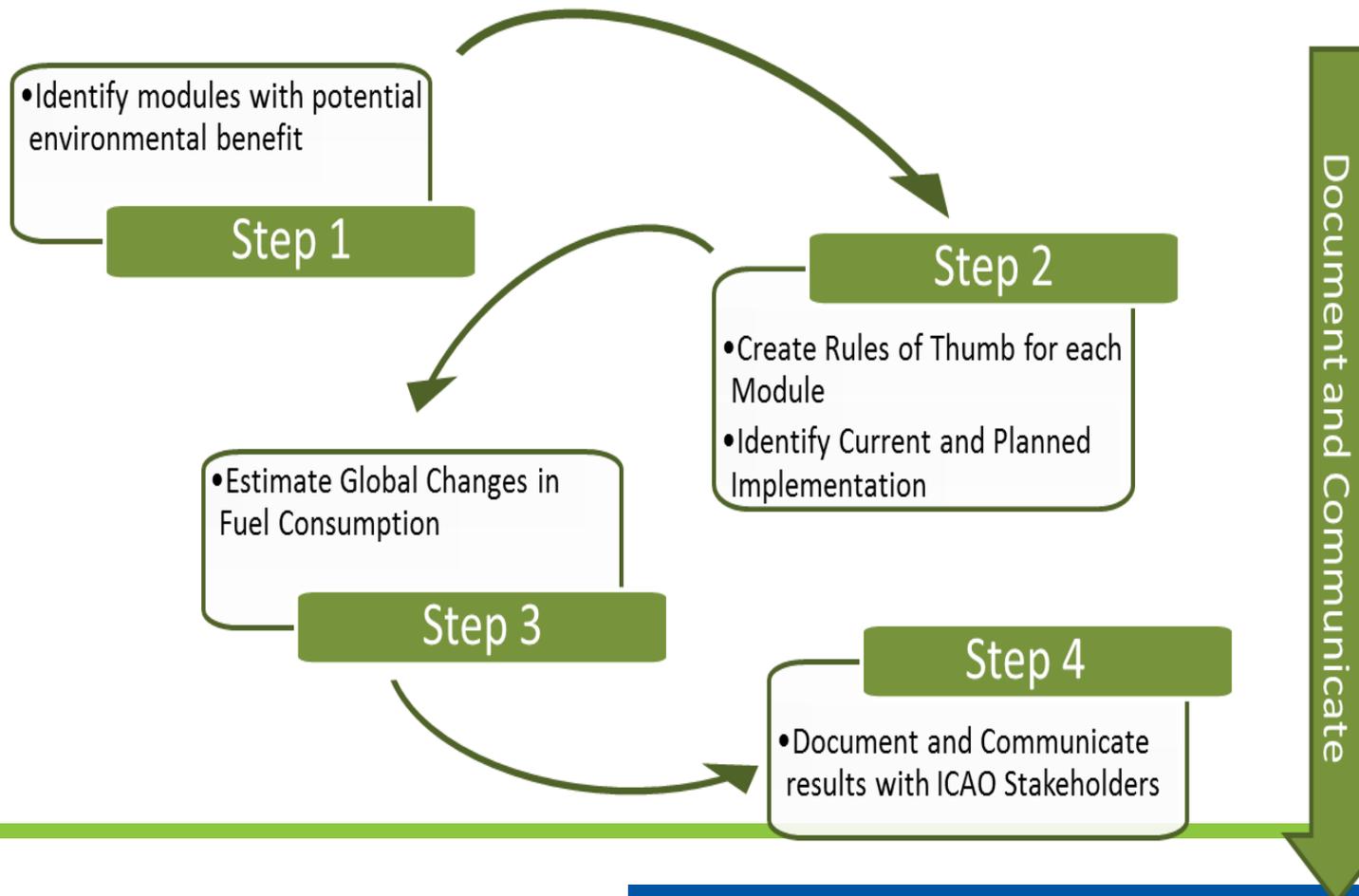


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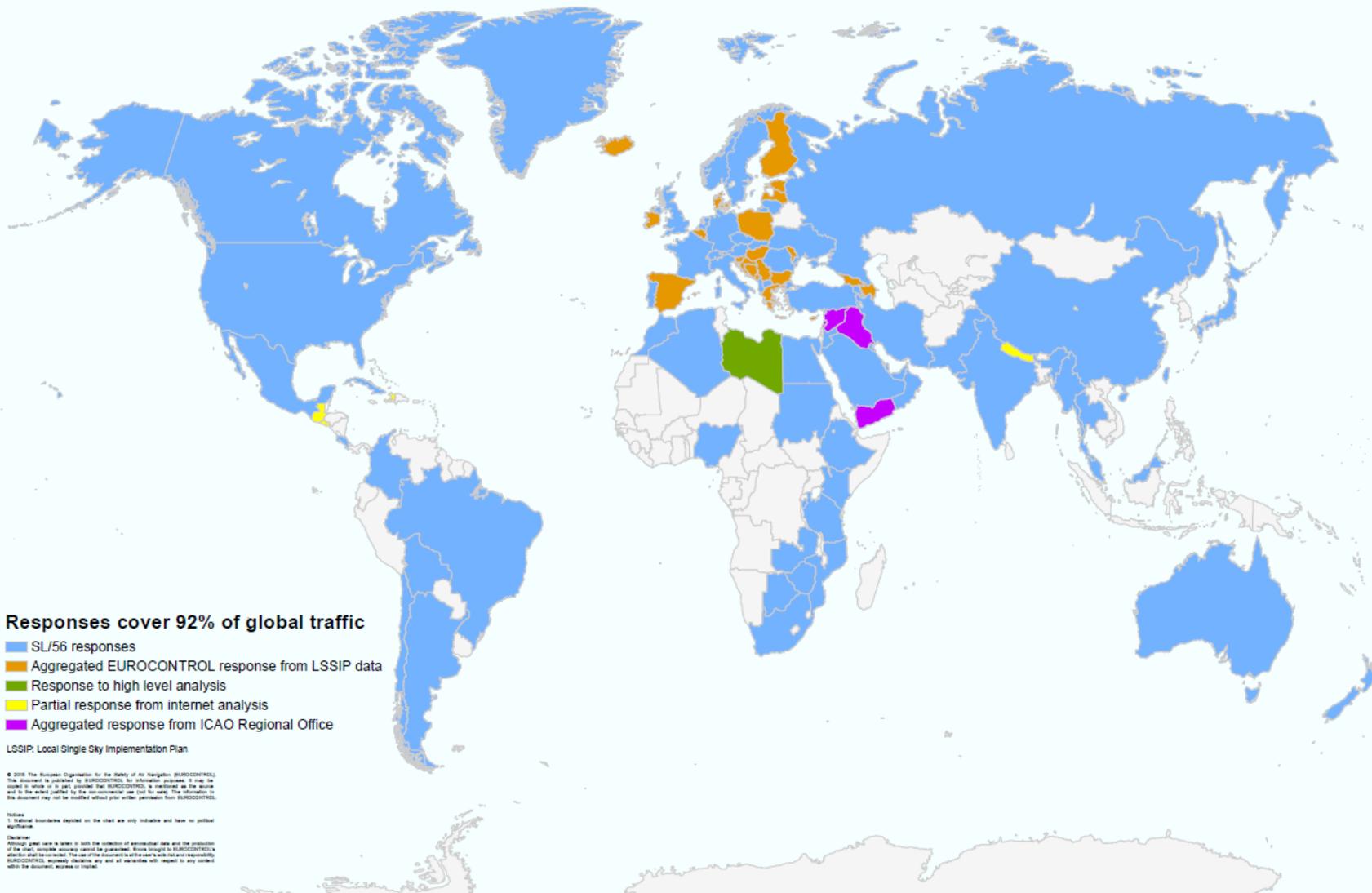
MONTREAL, CANADA, NOVEMBER 29-30, 2017

ASBU B0 environmental benefits assessment





Global responses from SL/56



Responses cover 92% of global traffic

- SL/56 responses
- Aggregated EUROCONTROL response from LSSIP data
- Response to high level analysis
- Partial response from internet analysis
- Aggregated response from ICAO Regional Office

LSSIP: Local Single Sky Implementation Plan

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Notes:
1. National boundaries depicted on the chart are only indicative and have no political significance.
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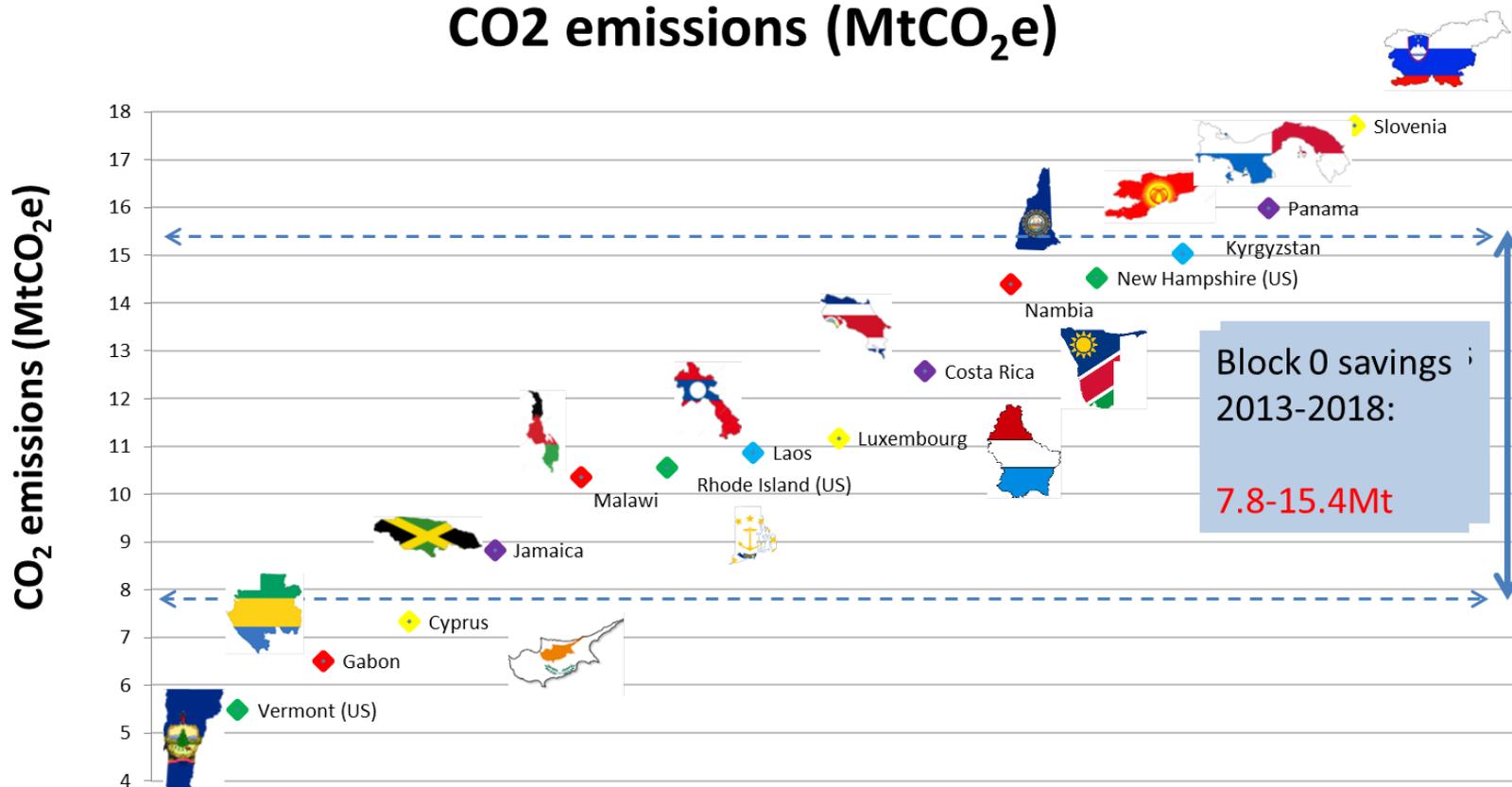
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Results of ASBU B0 analysis

- Planned implementation of ASBU Block 0 modules by States between 2013 and 2018 is estimated to provide significant fuel, CO₂ and cost savings:
- Total annual fuel saving of 2.5 - 4.9Mt
- Total annual CO₂ savings of 7.8 - 15.4Mt
- Total annual cost savings of up to \$2.3 billion / year

Estimated B0 savings 2013-2018: 7.8 – 15.4Mt CO₂ / year

CO₂ emissions (MtCO₂e)





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2016 – **NEW** combined B0/B1 analysis

- Combined B0/B1 (2013-2025) – as the benefits of B1 elements build on those in B0 so accrue together and should not be separated.
- B0 = 9 modules / 21 RoTs
- B0/B1 = 18 modules / 46 RoTs
- It should also be noted that although 2025 has been selected as the year to be modelled, it does not imply that the benefits of a certain block are only in a confined timeframe
- SL/118 will be issued shortly – need planned implementation data to be provided as soon as possible
- To be delivered by CAEP/11 (February 2019)



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Thank you / Merci

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