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MADRID  
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## Implementing the CAMO concept into the Belgian Defence

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BMAA - Certification Branch

EDA Military Airworthiness Conference 2018



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# Setting the Scene: Belgian Defence

## Key players in a Joint Structure



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DG: Directorate General  
ACOS: Assistant Chief of Staff

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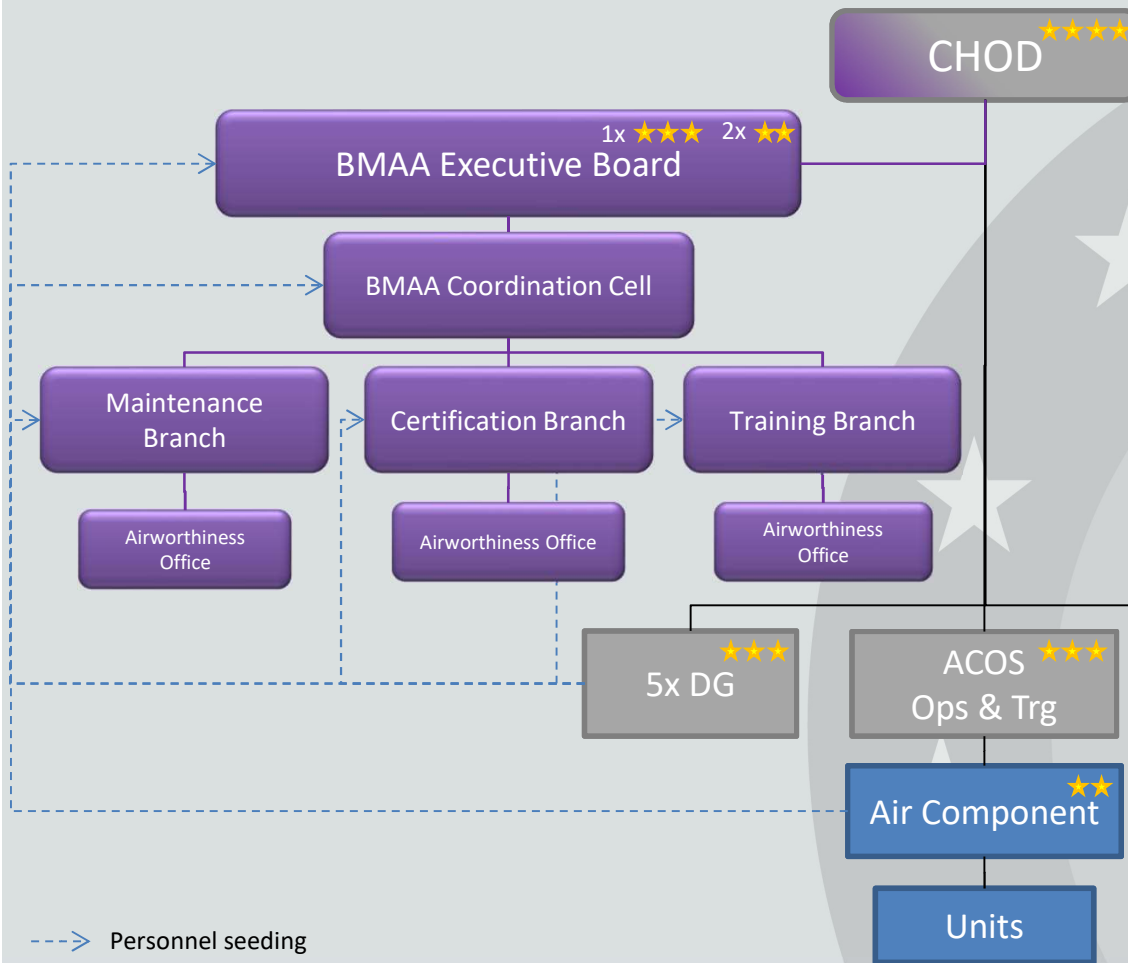
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# Setting the Scene: Belgian Defence

## Key players in a Joint Structure



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- 3 separate branches with AW-SME's for day to day work
- Under the supervision of a Coordination Cell staffed by the Branch Chiefs
- Working under the authority of the BMAA Executive Board

- No extra personnel, physically embedded in the current joint staff structure but functionally independent as the Executive Board answers to the CHOD
- ➔ Functional Halving
- ➔ Except for the SME's in the AW offices (independent checking)

ACOS: Assistant Chief Of Staff  
DG: Directorate General  
CHOD: Chief of Defence

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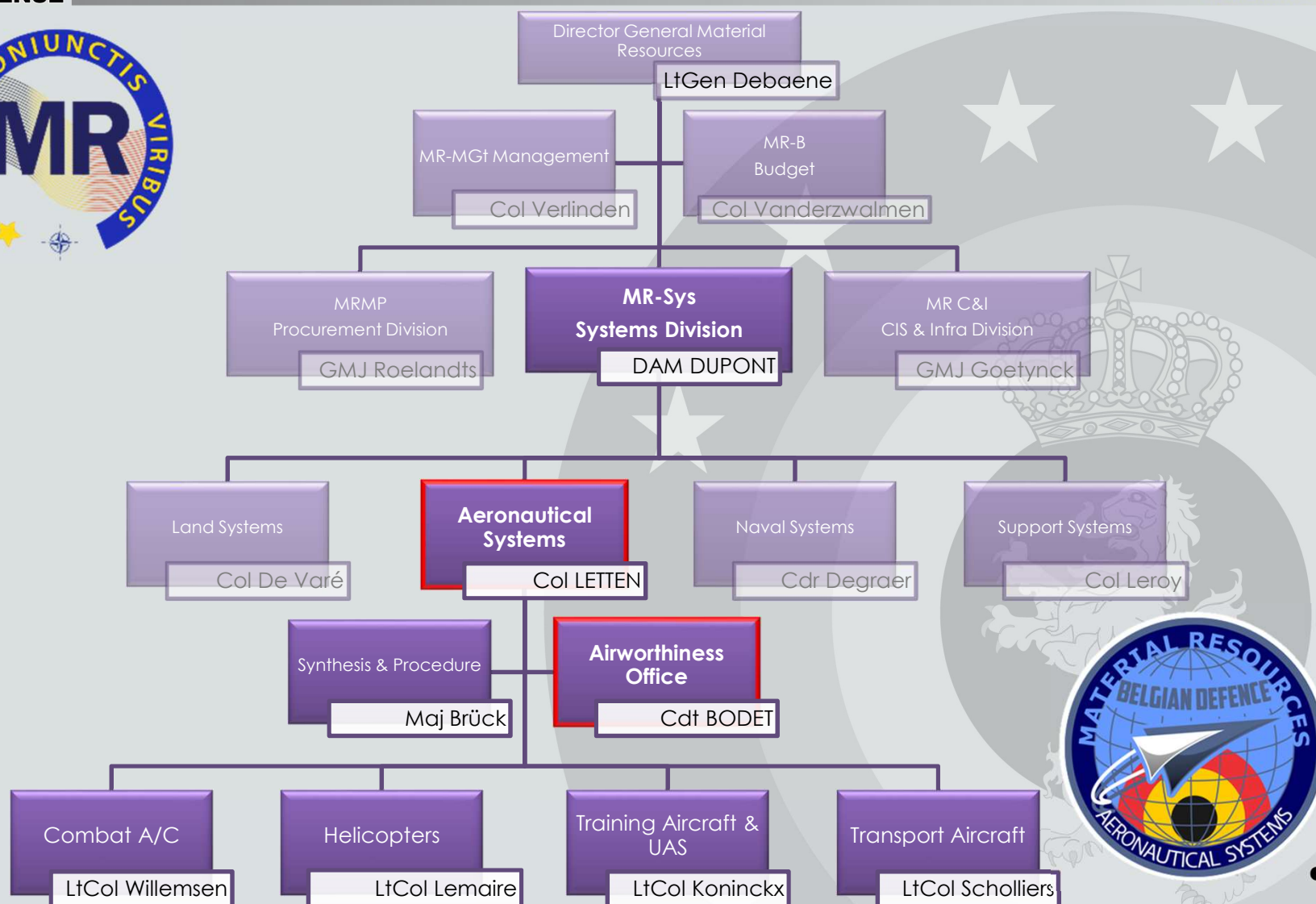
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# Setting the Scene: Belgian Defence

## Key players in a Joint Structure



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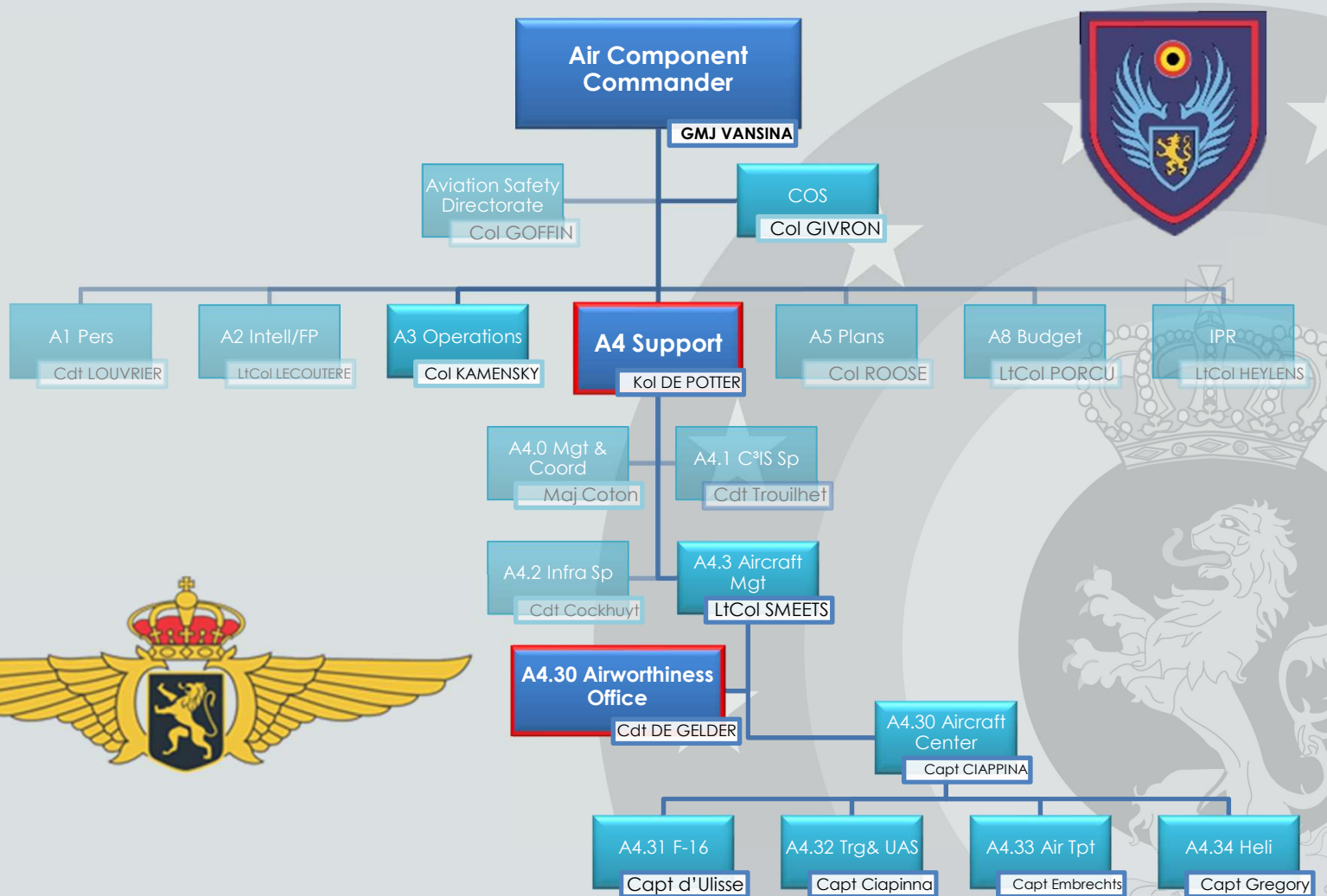
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# Setting the Scene: Belgian Defence

## Key players in a Joint Structure



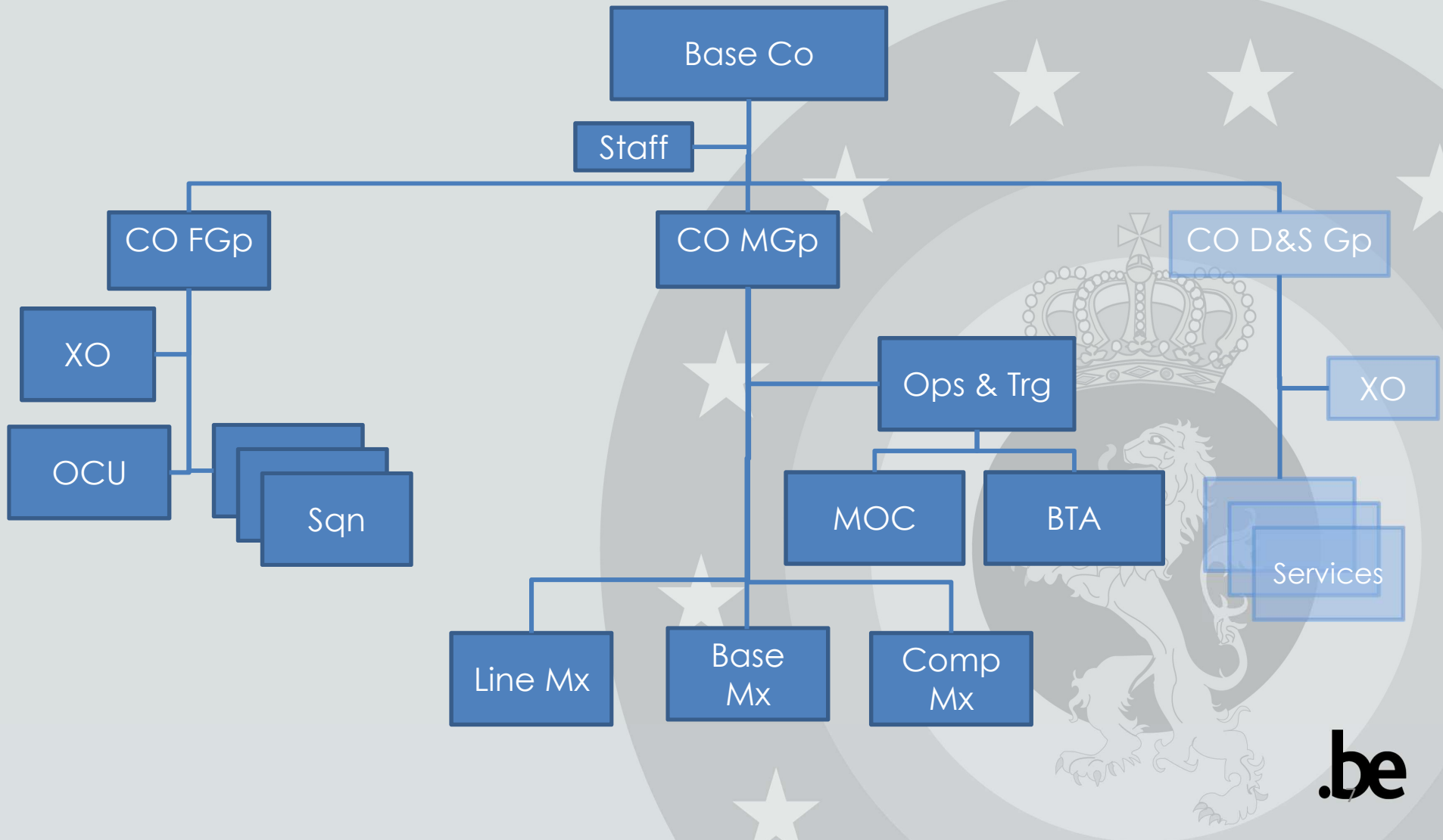
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# Setting the Scene: Belgian Defence

## Key players in a Joint Structure





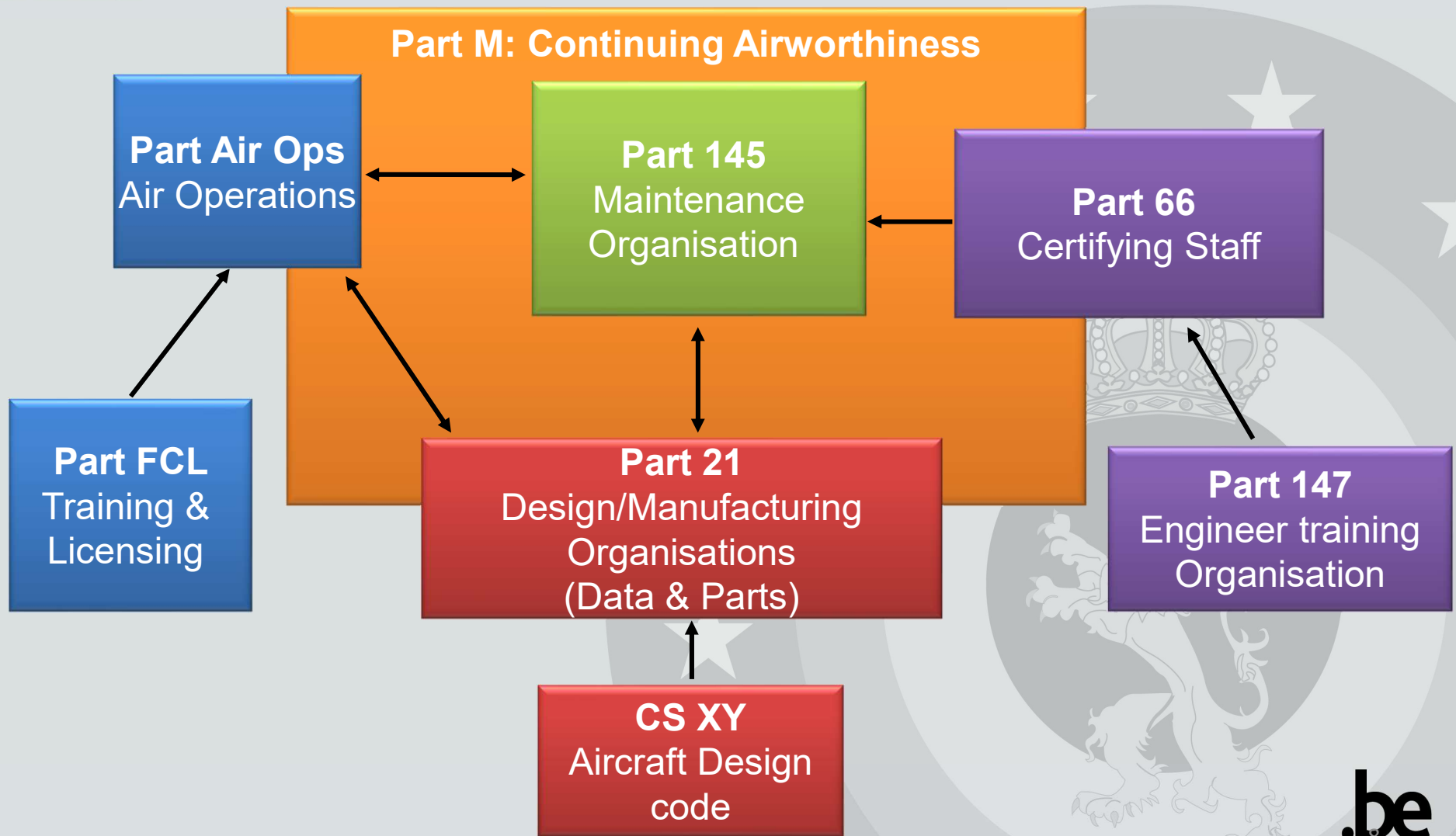
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# Why introducing a CAMO ?

Fitting M in the big picture.







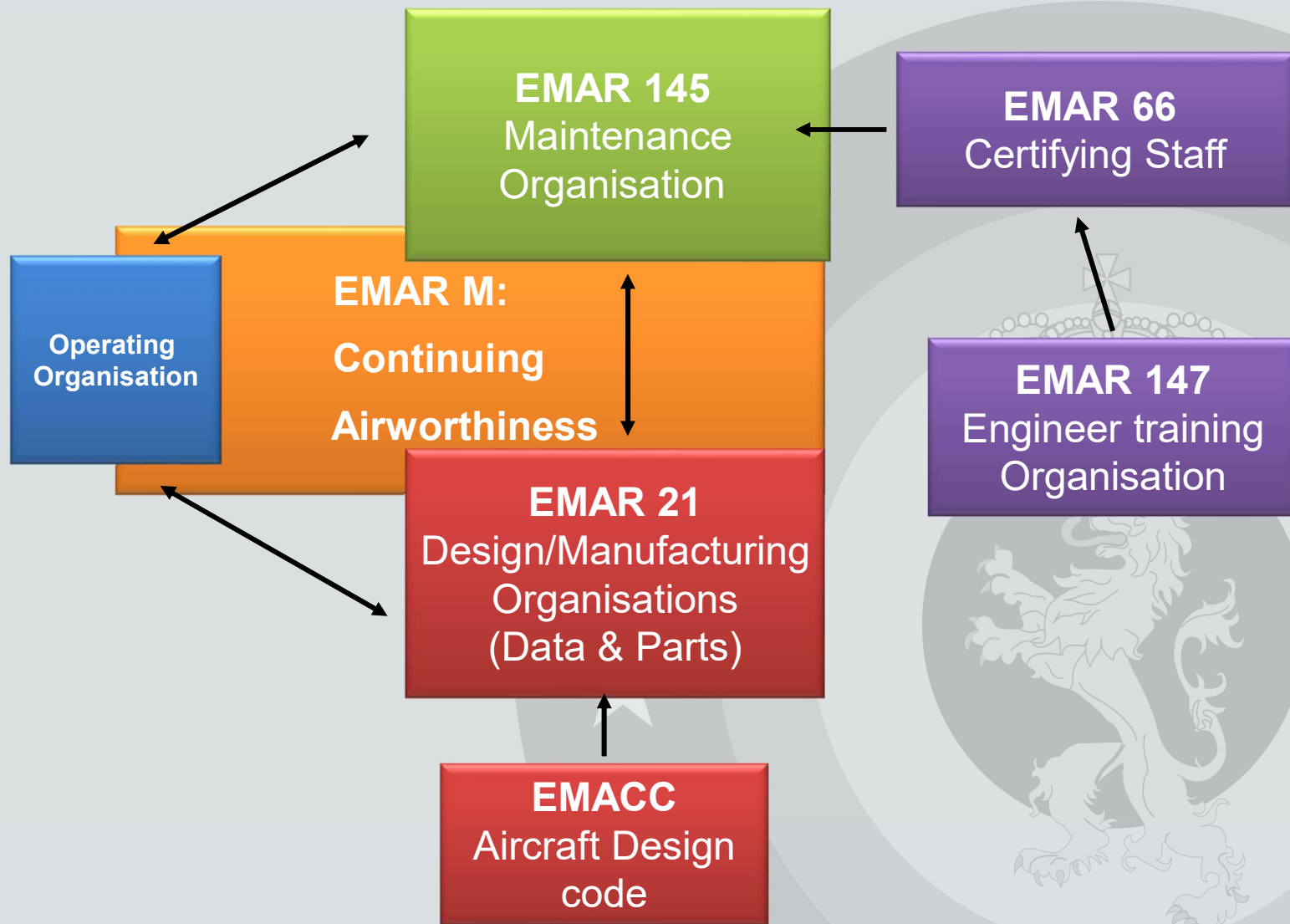
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# Why introducing a CAMO ?

Fitting M in the big picture.



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# Why introducing a CAMO ?

## Understanding EMAR-M



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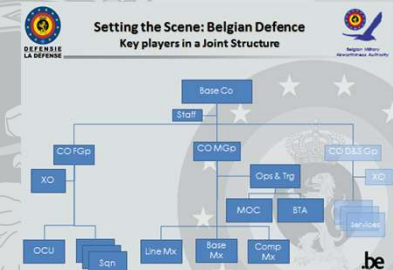
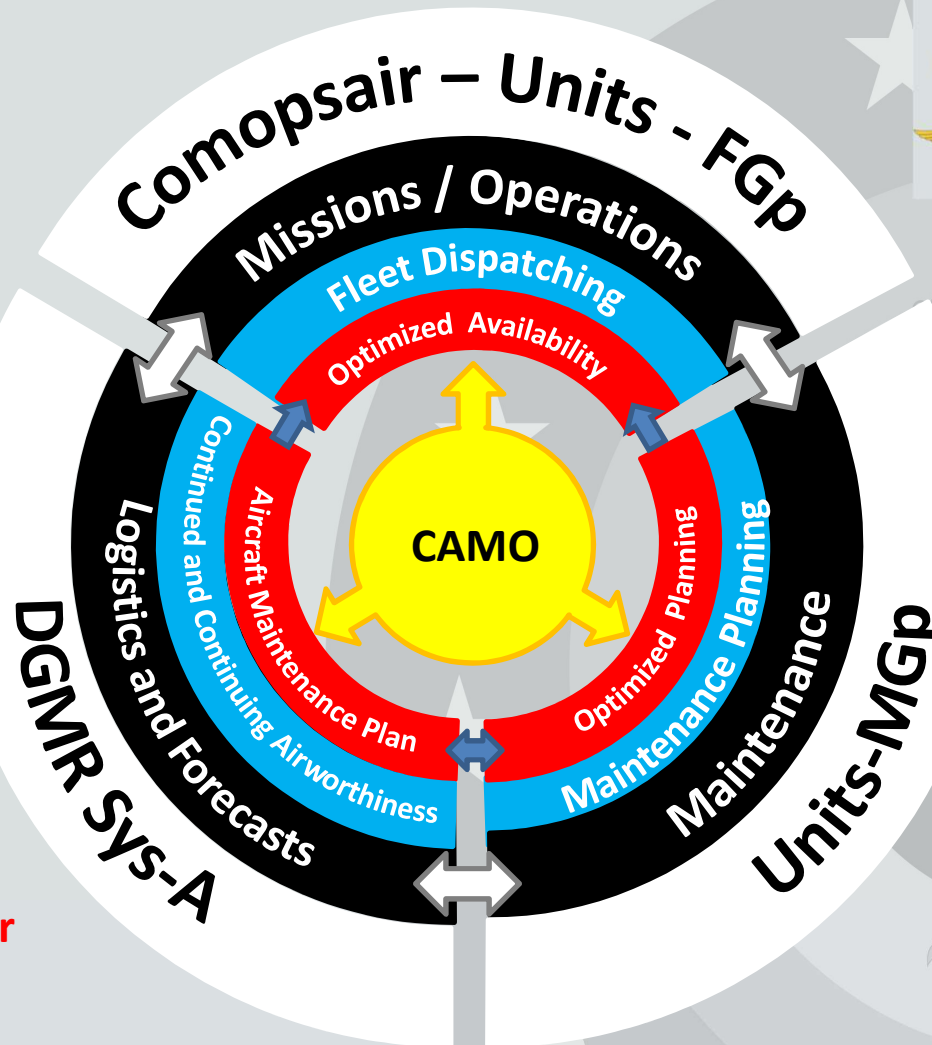
Operator – Operating Organisation



Approved Design  
Organisation

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Type Certificate Holder



Approved Maintenance  
Organisation

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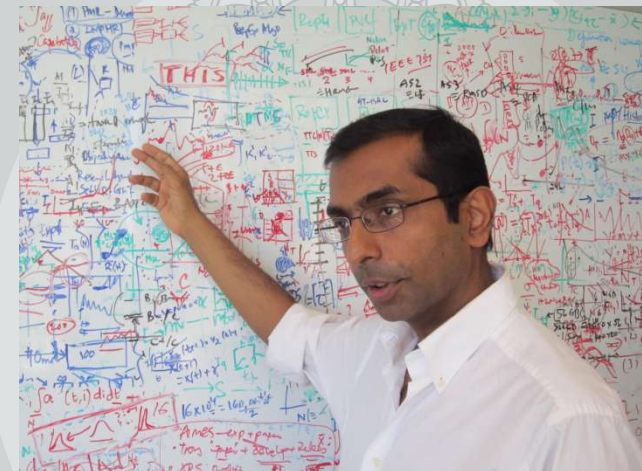
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# How did we introduce the CAMO ?



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- Step 1: gather data on organisation
  - Visits to different CAMO's
  - CAME requirements analysis
  - ARC analysis
- Step 2: whiteboard exercise
  - Identify what is already done
  - Centralized vs Decentralized
  - Fill the gaps
  - Fit principle to the structure
- Step 3: develop CAMO
  - Assign tasks in the current structure



Not actual representation of said whiteboard  
Person depicted is not affiliated with the  
Belgian Defence

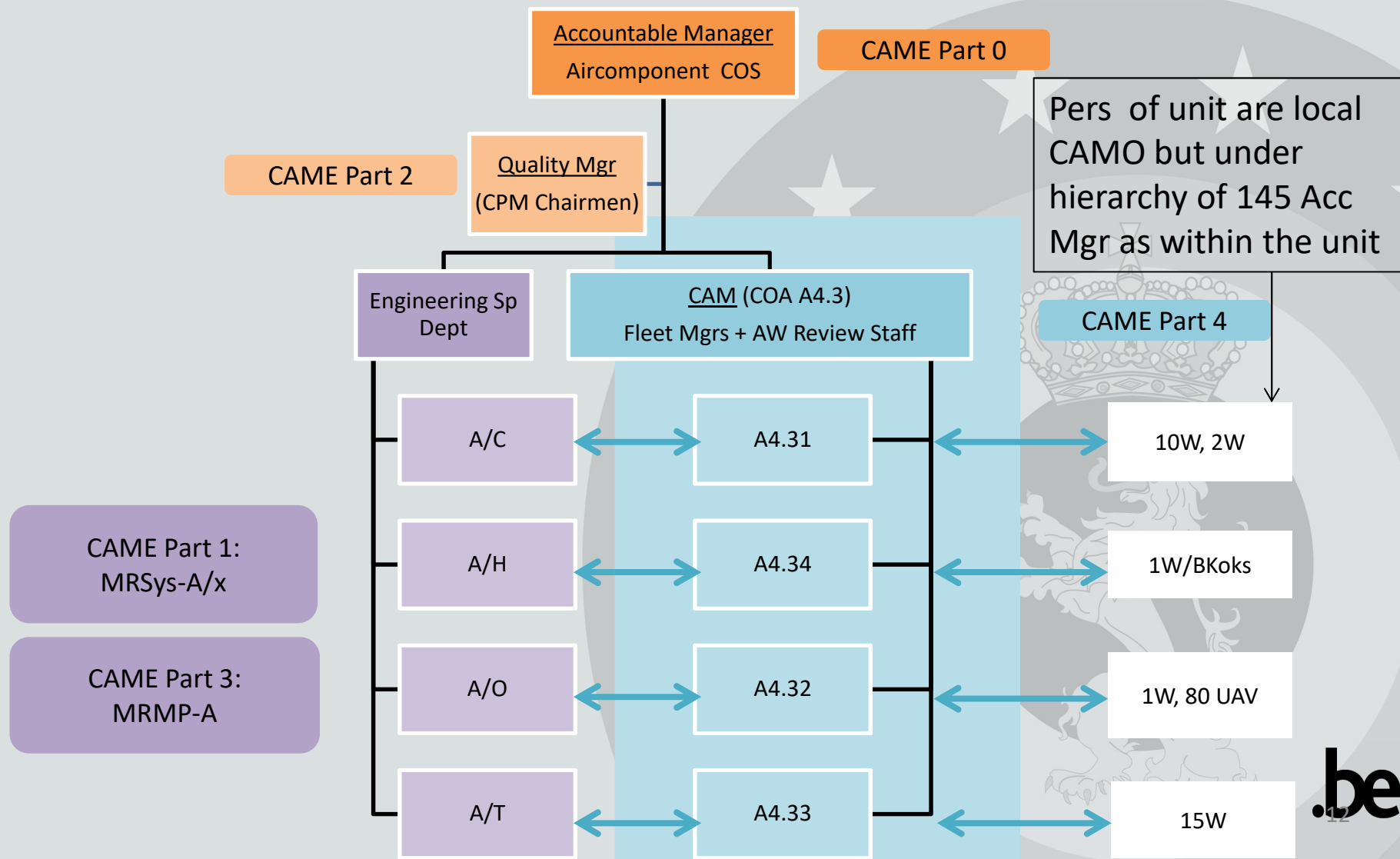


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# What was the first attempt ?





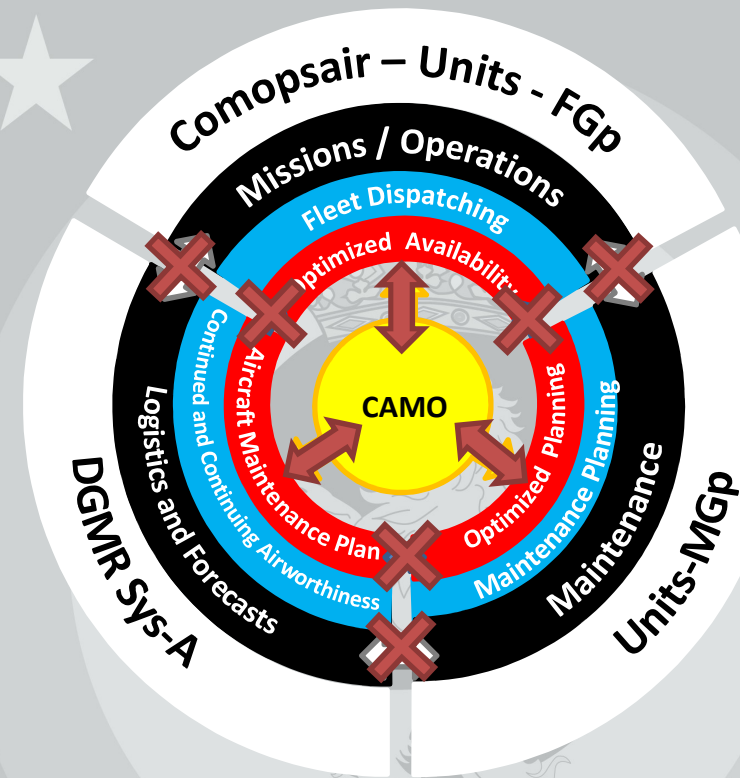
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# Why was it a flawed design ?

- After the BMAA audit by OSAC
  - The concept had some issues, misunderstanding of the functionalities of the CAMO
  - Mix up between functions known in Belgian Defence, DO functions and actual CAMO functions
  - The structural and functional relationships within Belgian Defence didn't match with the functional relationships between DO-CAMO-MO
  - The ARC's can't be approved by the CAMO  
→ Conflicting interests between BMAA and Comopsair





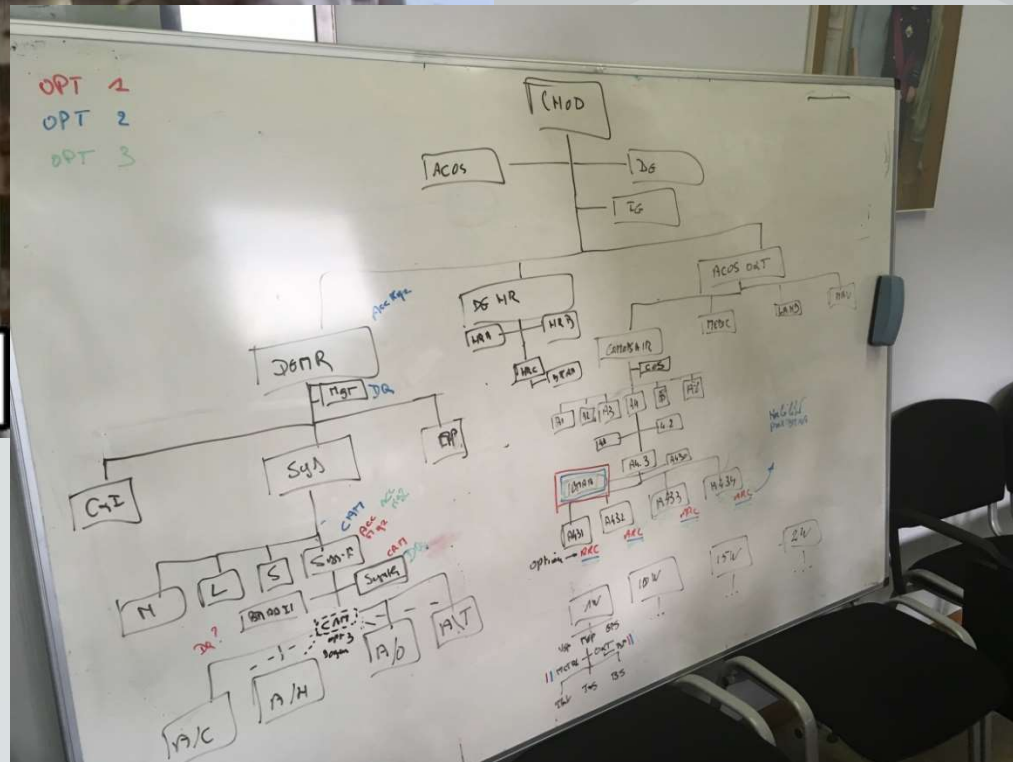
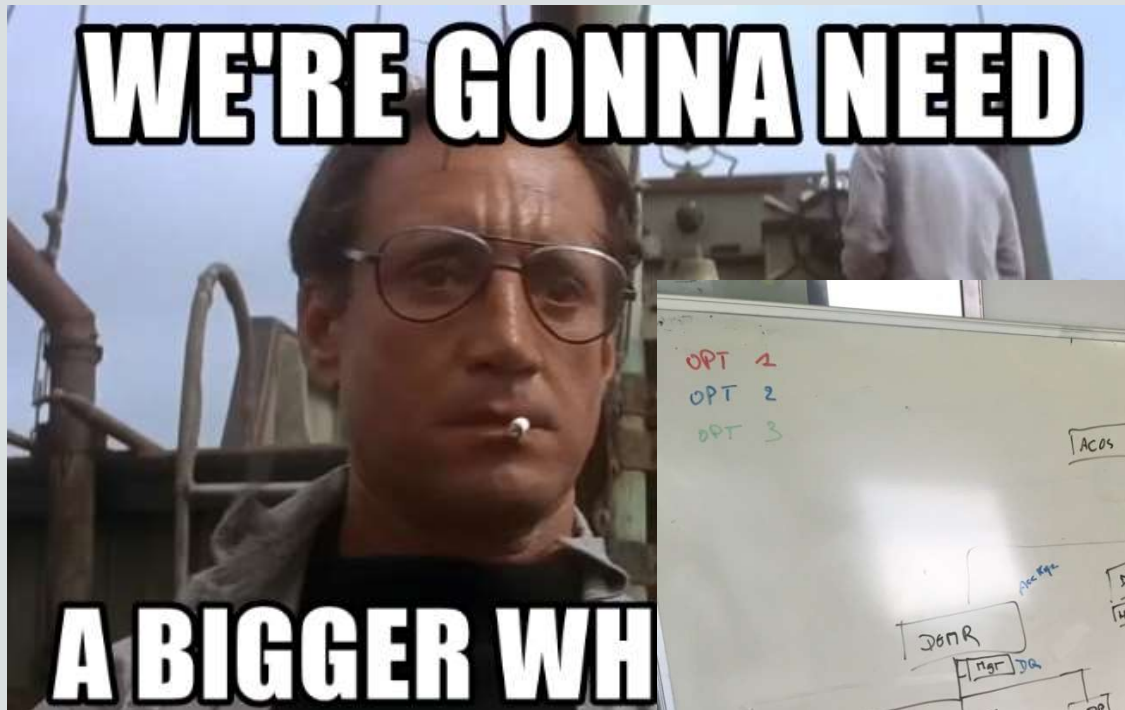


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# How did we correct it ?



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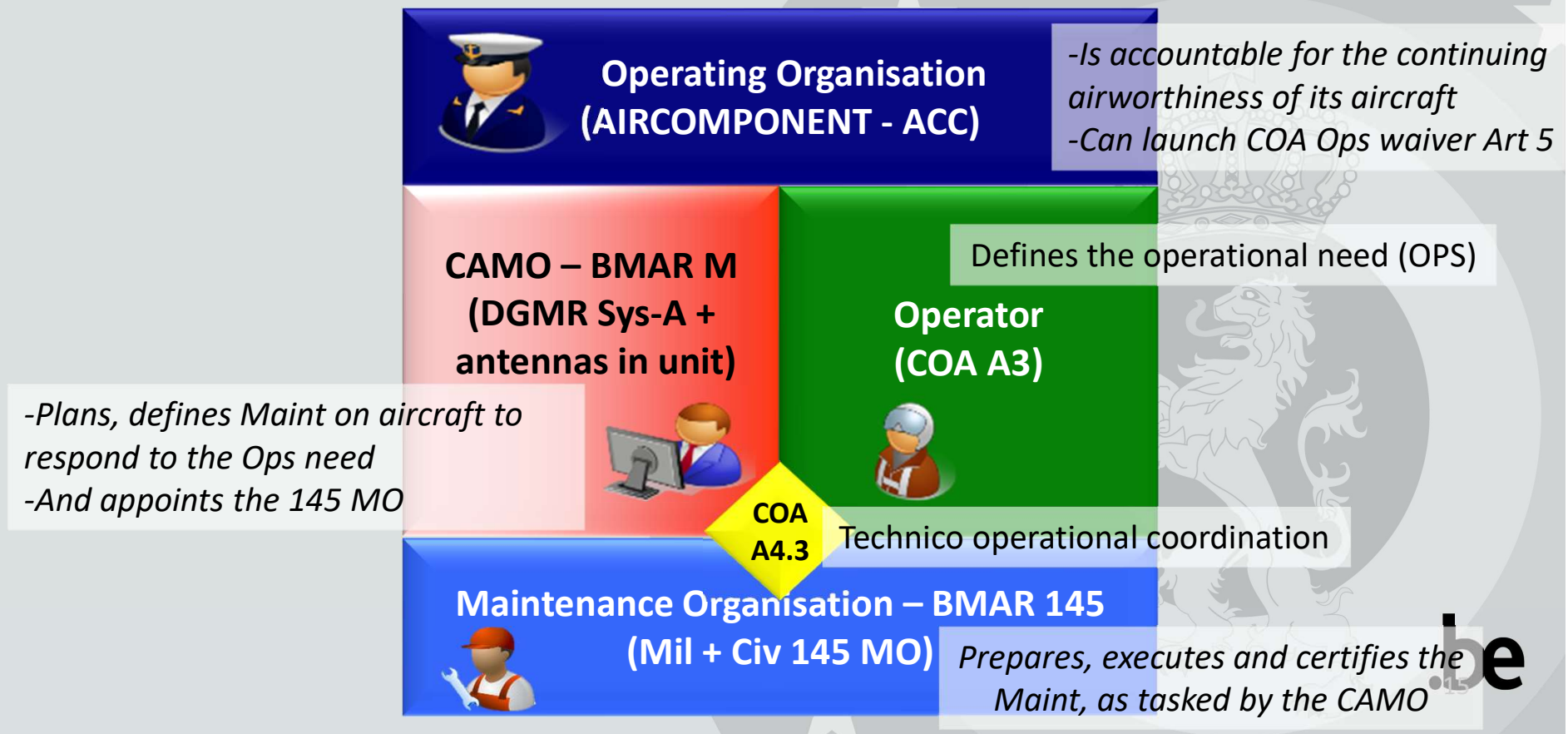
# How did we correct it ?

## The concept



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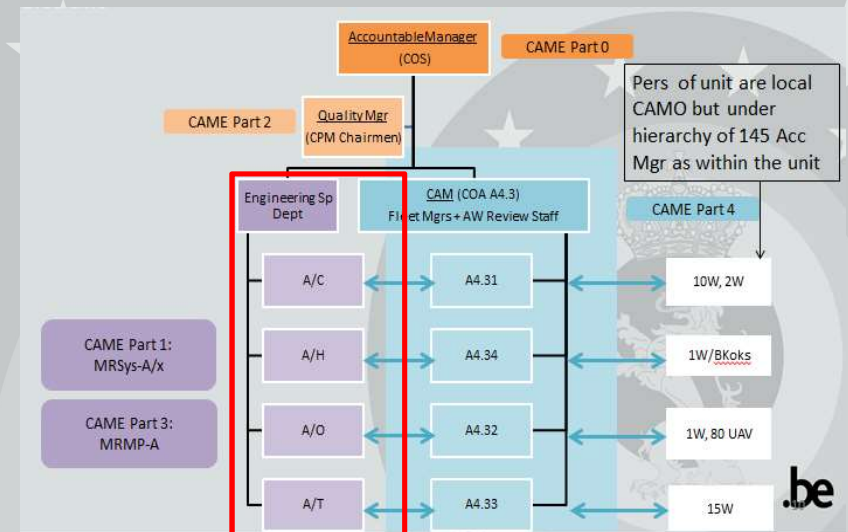
- Refresher Course Part-M
- Define a Reviewed Concept



# How did we correct it ?

## The CAMO organisation

- After the BMAA audit by OSAC
  - The organization functions were reviewed
    - DGMR Sys-A
    - Comopsair A4
  - Role of the BMAA Maintenance and Operator Branch remains
    - Issues ARCs, A4.30 is the right office
    - Custodian of the BMAR-M
    - Approves the CAMO / CAME





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# What has it become ?

## The CAMO organisation



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### BMAA Maint&Opr branch

- Pool of Qualified AW Review staff (ARS)
- Deliverance of ARC by BMAA (prolongation by CAMO)
- ARS may not be implicated in Maint Mgt and execution (so not in BMAR M and 145)
- As ACC is “head of Operating Organisation” → COA staff to survey the “CAMO contract” is advised
- BMAA Maint&Opr branch as “custodian” of the BMAR M and deliverance of a CAMO approval

- + At execution level, not at policy level
- + Quality department

Accountable Manager

MRSys-A

Quality Mgr

MRSys-A/S&P

4xCAM

(1/ Osec)

Nominated Pers  
Sys-A/C

Nominated Pers  
Sys-A/H

Nominated Pers  
Sys-A/O

Nominated Pers  
Sys-A/T

Antennas  
10W, 2W

Antennas  
1W, BKoks

Antennas  
1W, 80 UAV

Antennas  
15W

### CAMO → CAME:

- Including delegation of CAMO task (SLA between Sys-A and unit)
- Quality system of Sys-A has access to the CAMO antennas in the unit
- Sys A can remain Head of the BMAA Certification Branch (dual hatted)



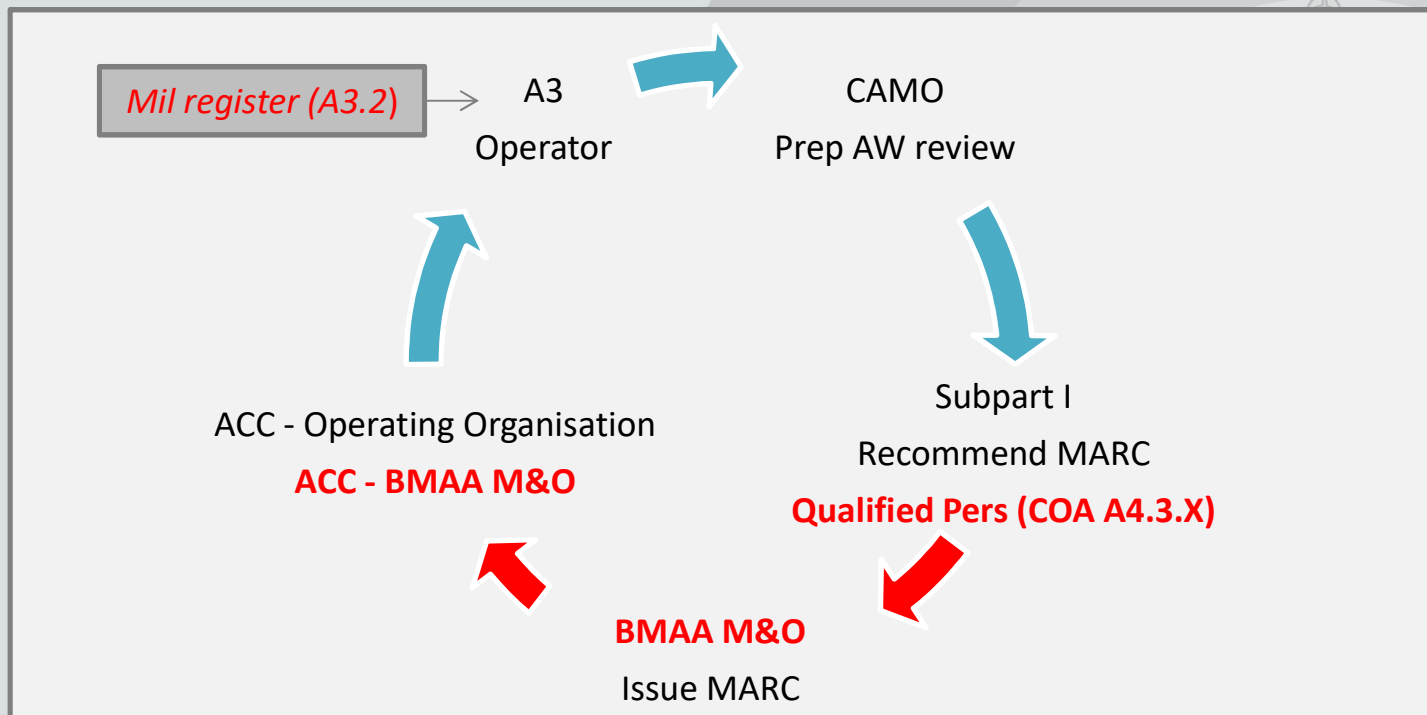
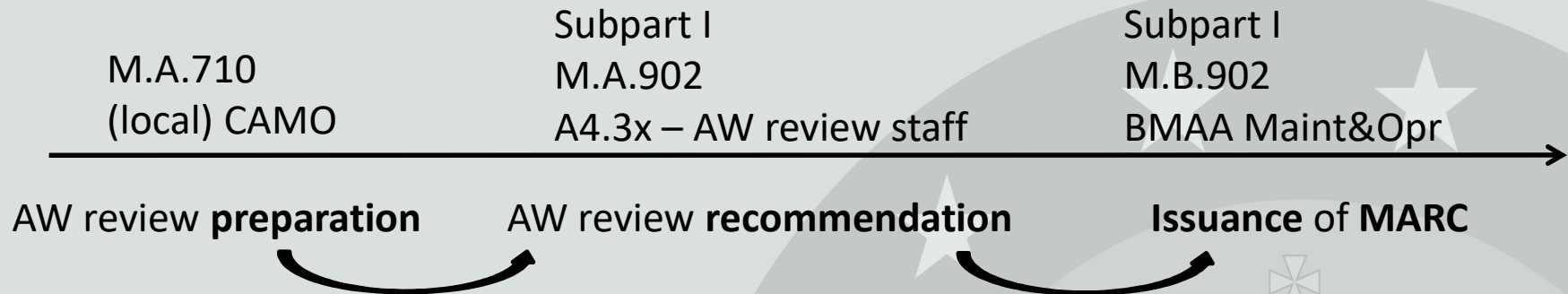
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# What has it become ?

## The ARC Cycle



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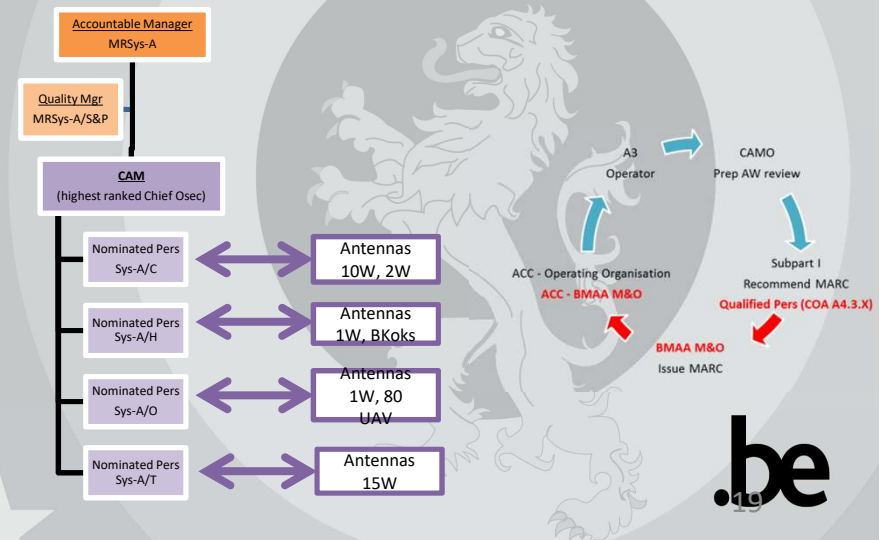
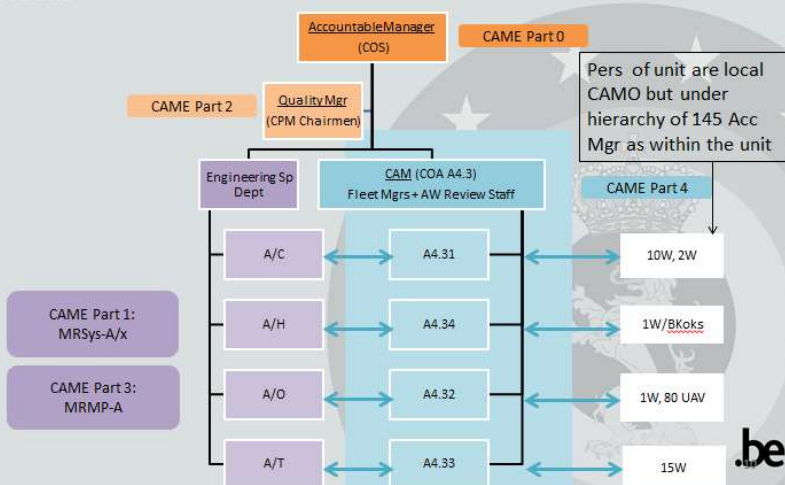
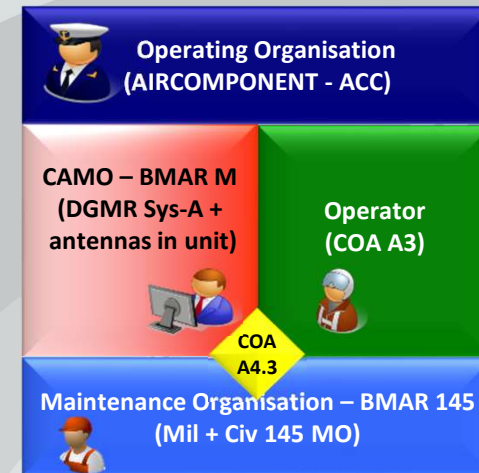
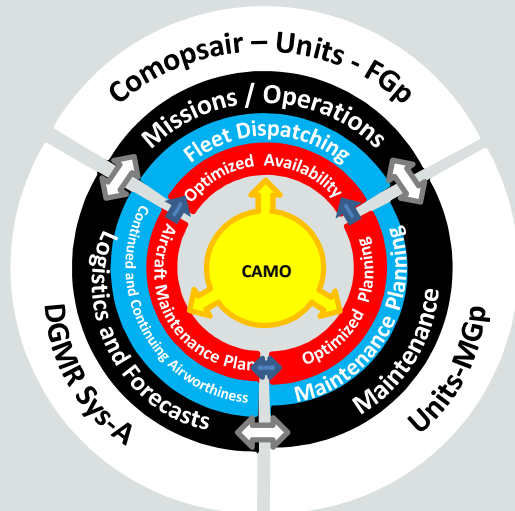
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# What has it become ?

## The finalized product



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# The way ahead



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## End state:

- BMAR M consolidated
  - CAMO concept approved
- (After OSAC survey + Exec 2018-02)

Target date: Nov 2018

## End state:

signed CAME

## Target date:

Sep 2019

## End state:

Approval CAMO  
(After OSAC audit)

## Target date:

Dec 2019





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# Key take aways !

- Fully understand the importance of the CAMO and its assigned roles and responsibilities towards:
  - Operator
  - Maintenance Organisation
  - Design Organisation
  - Authorities
- A program manager / office might be closer to a CAMO function than a DO function.
- An external expert view before implementing such a project can prevent a lot of trouble.
- Think about how to handle the Airworthiness Reviews, be cautious not to mix up responsibilities.



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# QUESTIONS?



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