# *The modernization of Norwegian GBAD Forces to counter the 21st Century air threat*

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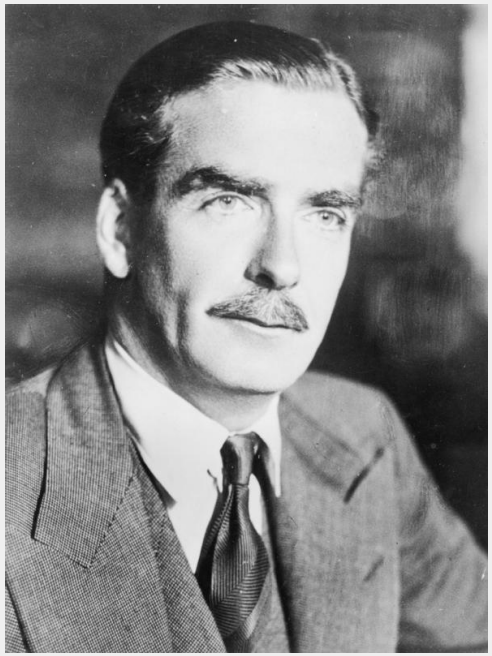
NORWEGIAN ARMED FORCES

# *Regarding acquiring military capabilities timely…*

*«I would strongly advice against holding a high military command in the first two years of any war in the British Army. Better to wait until stuff begins to come along. Which, I am afraid, in the last two experiences (the two WWs) was after the third year or later»*

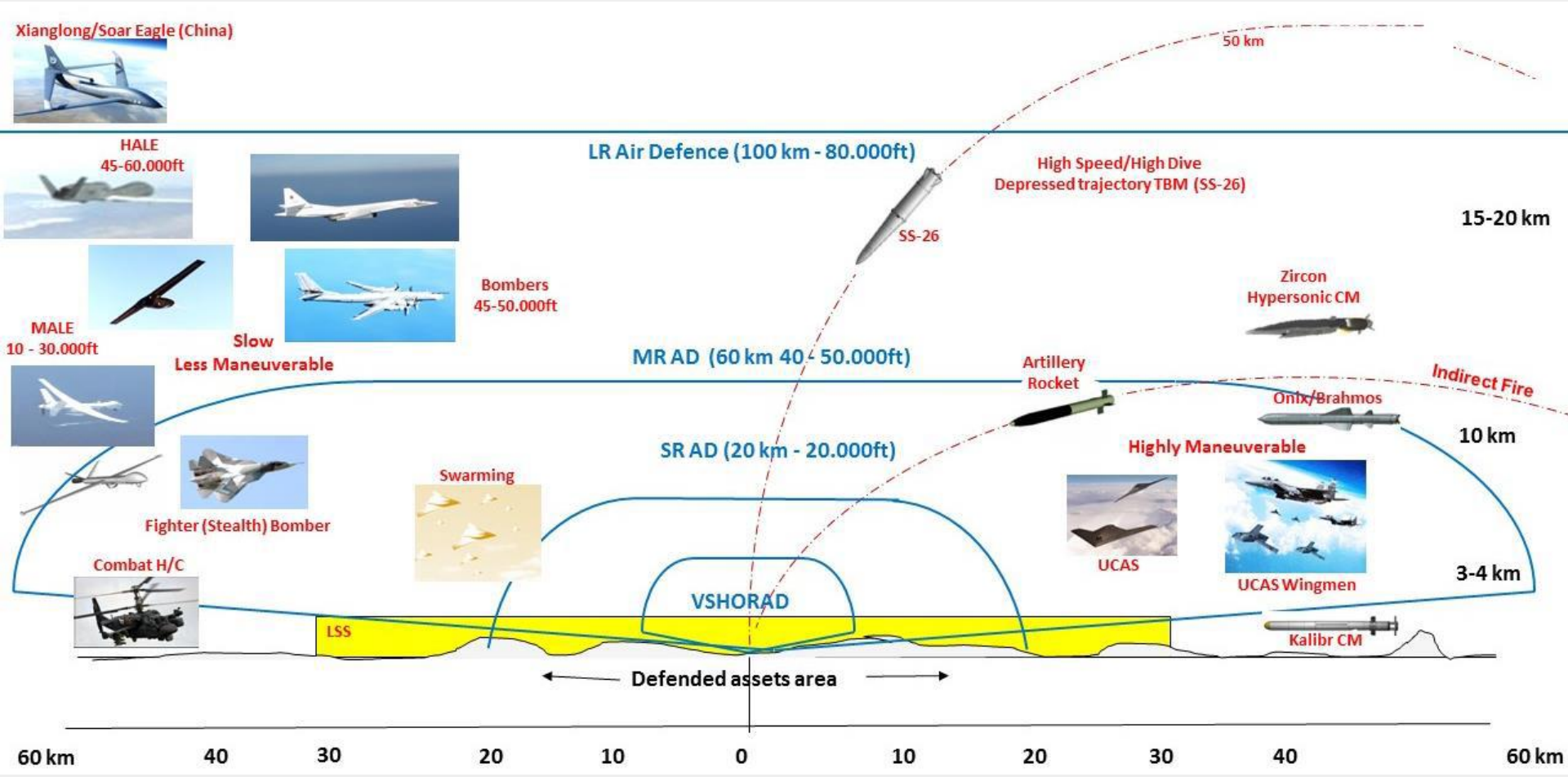
Sir Anthony Eden



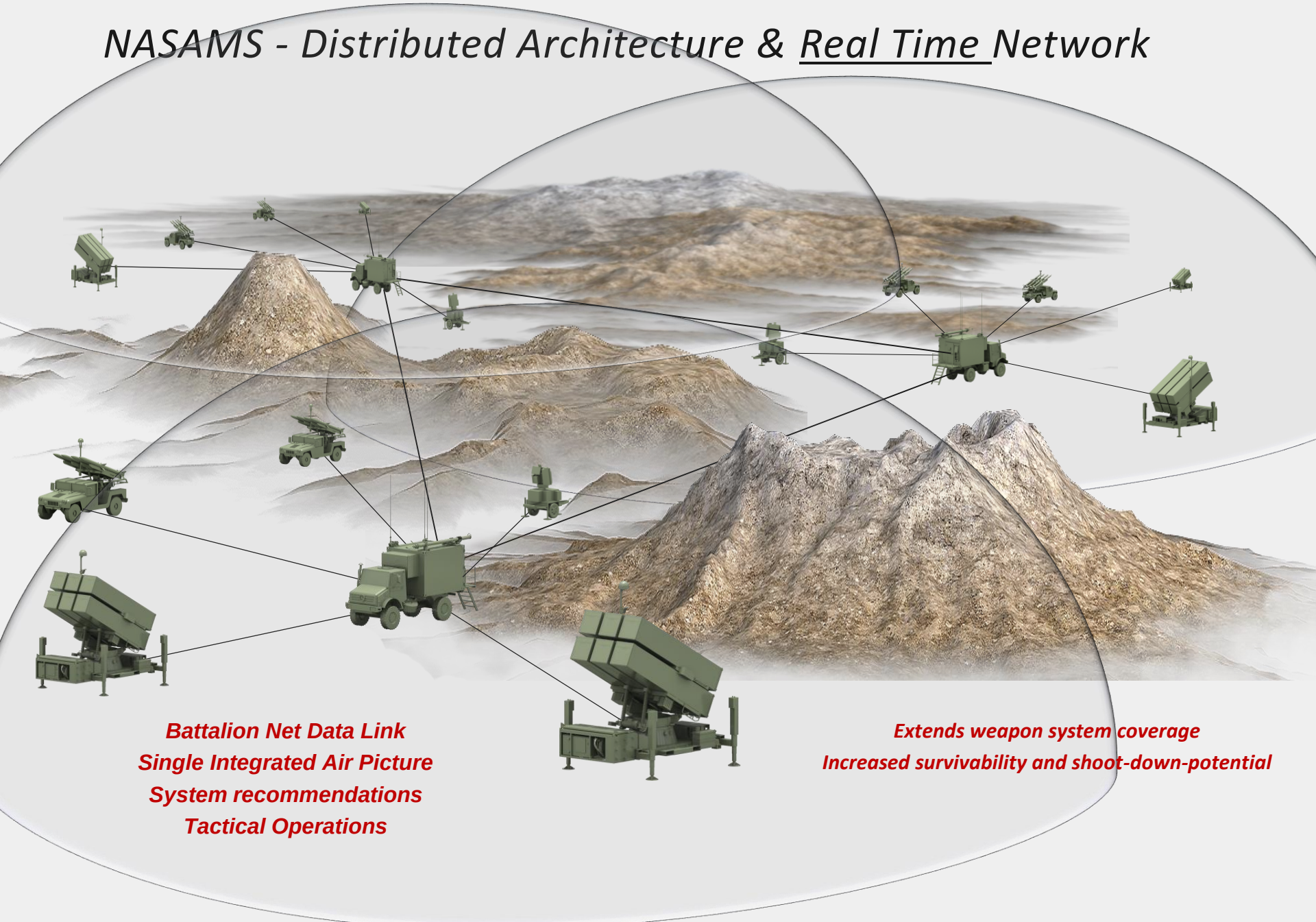
# *Outline*

- The contemporary air threat
- NASAMS -the backbone of Norwegian GBAD
- The Roadmap ahead (Modernization plan)
- Future trends and challenges

# *The contemporary air threat*



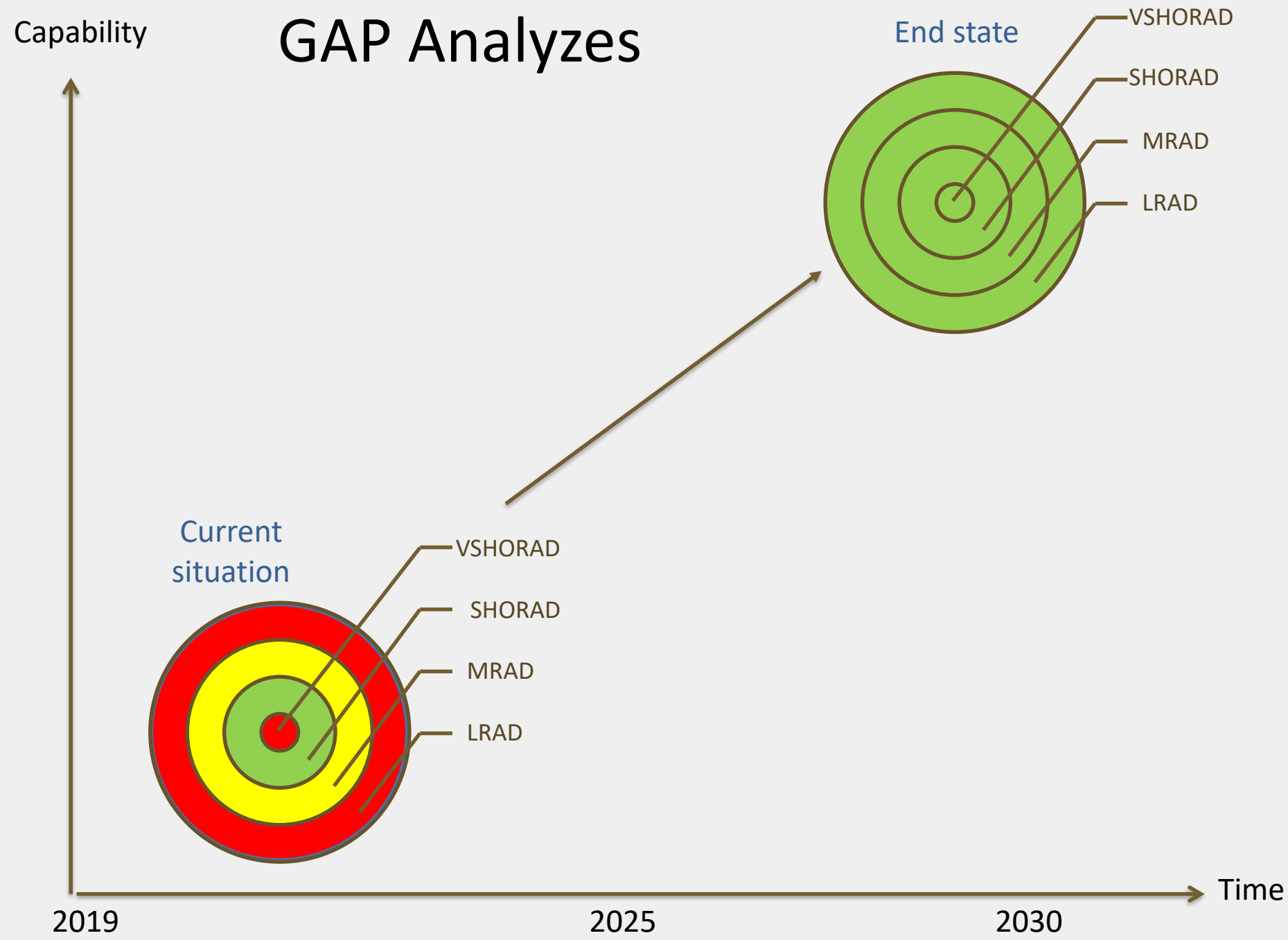
# NASAMS - Distributed Architecture & Real Time Network



***Battalion Net Data Link***
***Single Integrated Air Picture***
***System recommendations***
***Tactical Operations***

***Extends weapon system coverage***
***Increased survivability and shoot-down-potential***

# GAP Analyzes



# *Major GBAD procurements are in the pipeline… (part 1)*

**NASAMS III**
High Moblility
Lchr and IP
communications

**SHORAD**
Armoured vehicle
IR missile
Integrated Sensors



**C-UAS – Initial**
Sensor and RF-Jamming (soft kill)

**VSHORAD**
MANPAD
Integrated with NASAMS

| 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|---|---|

# *Major GBAD procurements are in the pipeline… (part 2)*

**NASAMS III**
High Moblility
Lchr and IP communications

**SHORAD**
Armoured vehicle
IR missile
Integrated Sensors


**C-UAS – Initial**
Sensor and RF-Jamming (soft kill)

**VSHORAD**
MANPAD
Integrated with NASAMS

**New MRAD Radar**
Next generation
AESA radar?


**New missile(s) (MRAD)**
Mix RF and IR missiles
Cost-effectiveness


**C-UAS – part II**
Hard kill
Gun?
DEW?

**LRAD system**
TBM capability

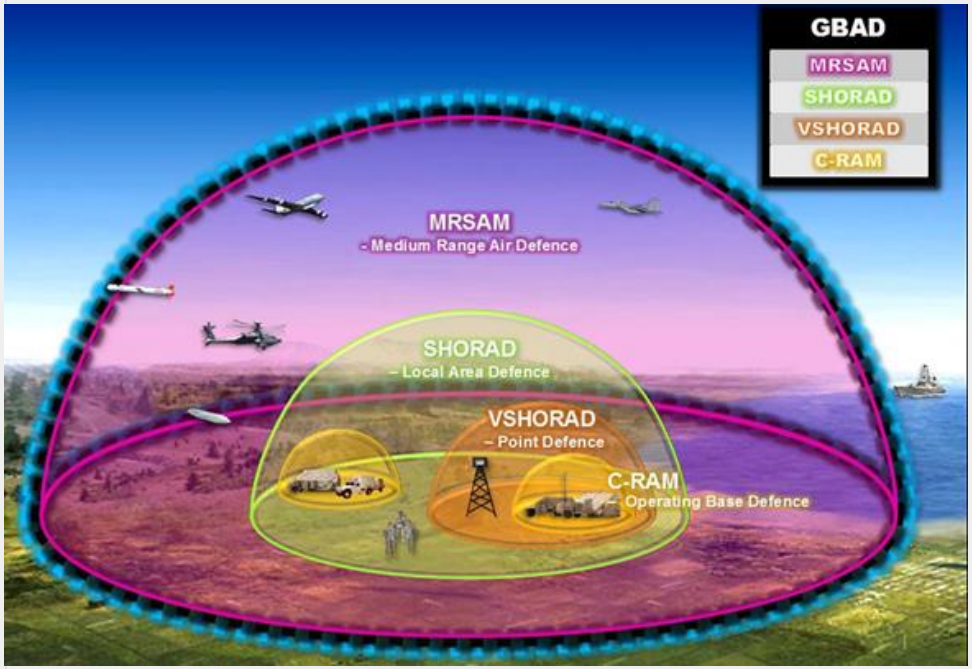
| 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|---|---|

# *Future trends and challenges*

New Air threats + higher readiness =

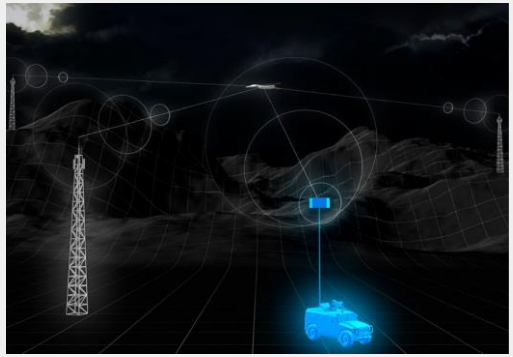
1. Interoperability levels
   - ATP 82 Allied Doctrine for GBAD
2. Artificial Intelligence (AI)
   - Automation levels
   - NSR for VSHORAD/SHORAD systems for the year 2030 and beyond
3. Low manning
   - Multi LCHR
   - Remote controlled components
   - Passive sensors

Layered AD and Task Forces




Multi LCHR

Passive sensors



# *QUESTIONS*

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