



From existing services to the very next future

Conference « Space Solutions for Resilience in the Mediterranean », 27-28 June 2017, Malta

ThalesAlenia
a Thales / Leonardo company **Space**



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Ref.:

Why?

- 🚀 Needs for efficient maritime surveillance services
 - 🚀 Traffic management
 - 🚀 Fisheries monitoring
 - 🚀 Trafficking, smuggling
 - 🚀 Humanitarian crisis linked to migration
 - 🚀 Pollution monitoring
 - 🚀 ...
- 🚀 Driving requirements as identified today relate to
 - 🚀 Worldwide coverage, costal & high sea
 - 🚀 All weather conditions, day and night
 - 🚀 Permanence and on demand
 - 🚀 Timeliness
 - 🚀 Detection, tracking, characterization and identification
 - 🚀 Cooperative as well as non-cooperative vessels



Strong political demand

- 🛰️ *“5. Recognises that allowing public authorities to benefit from more permanent and responsive space-based ocean surveillance capacities will allow them to respond more quickly and to make substantial savings by better targeting their actions, [...]” – Opinion of the Fisheries committee, European Parliament, 04/2017*
- 🛰️ *“[the EC] will also assess further the potential of Copernicus and Galileo/EGNOS to meet EU autonomy and security needs and improve the EU's capacity to respond to challenges related to migration, border control and maritime surveillance.”, Space Strategy for Europe, 10/2016*
- 🛰️ *“To improve the EU's ability to respond to evolving security challenges related to border controls and maritime surveillance, the Commission will expand Copernicus capabilities taking into account new technological developments in the sector,” – European Defense Action Plan, 12/2016*



How?

Our vision: a European permanent & global solution to identify and track any vessel

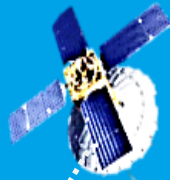
1. Build up a version 0 of services with existing infra-structure and assets (such as Copernicus, existing services)
2. Develop complementary pilot infra-structures for a version 1 with EC / ESA through next MFF and ESA CMIN 2019 and further dedicated budget lines
 1. New satellites derived from high performance product lines (radar or optical sensors)
 2. New constellations for innovative AIS & data collect missions
 3. An innovative high altitude platform Stratobus TM for regional and permanent coverage
 4. Evolutive ground segment and data treatment centres
3. Enhance the system to version 2 (for a better revisit and coverage) through a PPP type with the EU
4. Further enhance the system to version 3 addressing worldwide user's (institutional as well as commercial)



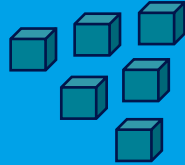
Existing assets
(Sentinel + contributing missions)



- Multi purpose assets, not specific for Maritime
- Low revisit time for maritime applications
- Wide swath with very low resolution or very high resolution with very small swath



Dedicated SAR constellation + S-AIS



Data collect

STRATOBUS

- 20 km altitude
- Radar/Optical imaging, 200-400 km FOV
- Long-time operability
- Constant and Stationary

RPAS

- Limited autonomy
- Near coastal areas
- NRT response



Mission Operation Centre

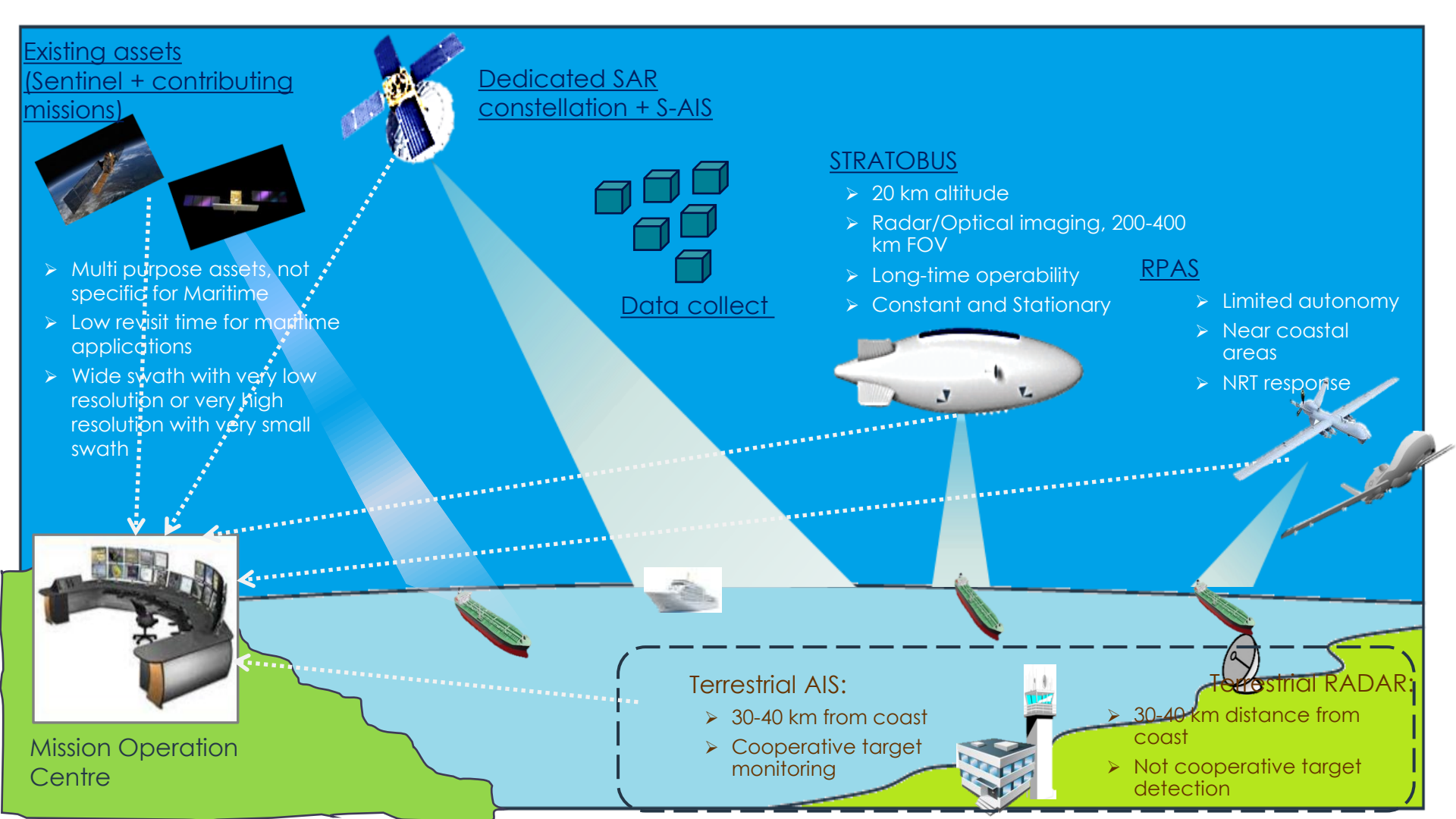
Terrestrial AIS:

- 30-40 km from coast
- Cooperative target monitoring



Terrestrial RADAR:

- 30-40 km distance from coast
- Not cooperative target detection



Proposed approach

→ the consolidation of existing and future capacities into a genuine European space-based maritime surveillance system, which will benefit a number of institutional users and whose services could be commercially exploited for export, could also represent a perfect case study for the EC's innovative ambitions in space

1. EU institutional users to commit acquiring high quality, reliable, permanent and validated data (images and associated information)
2. Progressive investments into an incremental "system of systems"
3. Industry to set up a dedicated service provider and to complement the EU demand by addressing the non-European, commercial and export end users.

