PROJECT SMARTAESA

Scalable & Multifunction SW defined RADAR and fuTure AESA

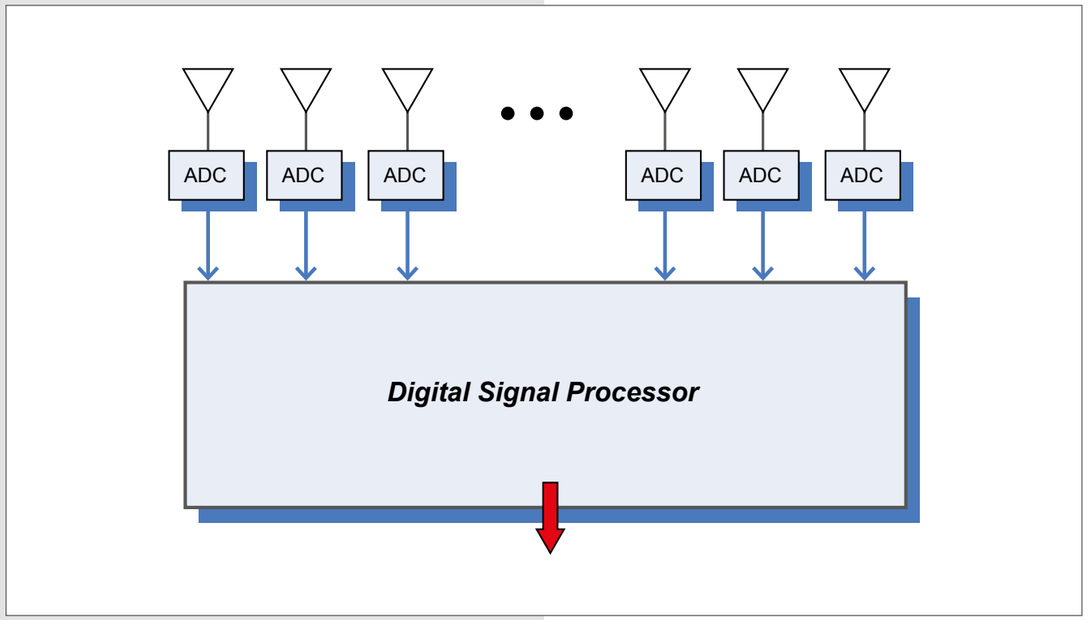
The objectives of this project are:

1. Study and design of a full digital beamforming radar architecture for open and SW defined multifunction radars. As a case in point, for design purposes only, a radar type MAESA-L, therefore in L band (1 GHz - 2 GHz) and with about a thousand transceiver channels will be considered.
2. The realization of an L-band demonstrator, scaled and of suitable geometry, which uses the full digital beamforming techniques and with the aim of carrying out surveillance activities of appropriate scenarios of interest.

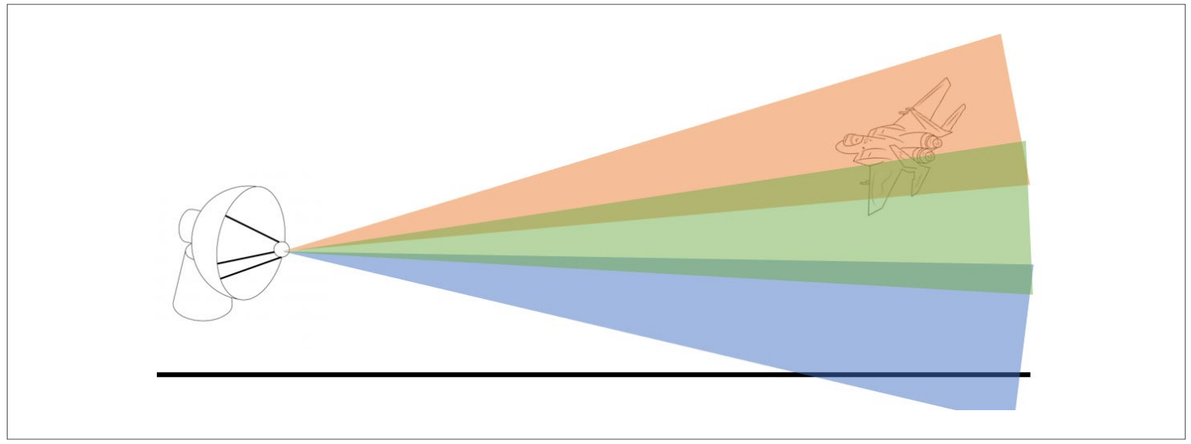
The proposed architecture will have characteristics of scalability, flexibility and adaptability that will allow future multifunction radar systems that will be based on it to:

- Avoid becoming rapidly obsolete with respect to the evolution of the threats they must counter.
- Be easily improved / upgradeable by means of firmware / software upgrades (e.g. implementation of accessory functions and / or the implementation of advanced signal processing based on Artificial Intelligence algorithms).

Technical Sheet
Funding institution:
Italian MoD
Project partners
Leonardo spa, Echoes srl
Project duration
April 2020 - April 2023
Involved countries
Italy

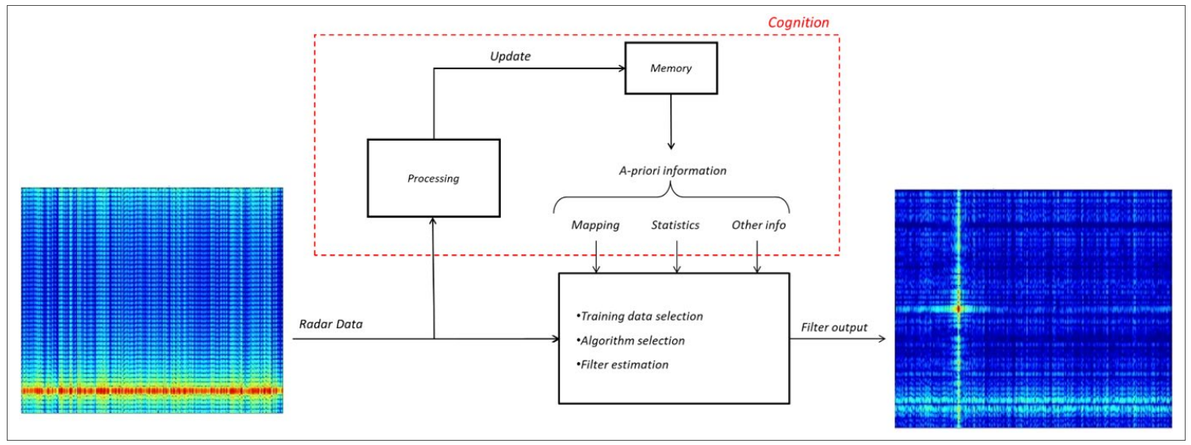


(a) Digital Array Radar Architecture



(b) Simulated multiple fan-beam geometries

(c) Cyber risk concept representation



(d) High level block diagram of the cognitive adaptive filter